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ABSTRACT

Drawn from papers accepted for presentation at a conference focusing on personalizing college-level learning skills programs, the 35 articles in this collection are arranged into five categories: investigations, program descriptions, program prescriptions, applications, and reactions and interactions. Specific topics discussed in the articles include the following: (1) mastery learning and politics, (2) meeting the individual needs of students, (3) the use and effectiveness of systematic desensitization and study skills methods in a test anxiety reduction program, (4) vocabulary instruction at the college and adult levels, (5) reading ability and readability, (6) the attitudes of community college instructors toward reading, (7) the restructuring of a reading program, (8) management of a learning assistance sector, (9) using program analysis to aid accountability and planning, (10) developing an individualized college reading program, (11) academic improvement groups, (12) teaching students to formulate questions, (13) teaching reading and study skills to law students, (14) predicting reading ability through language experience, and (15) cognitive learning style and the brain. (FL)

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PROCEEDINGS OF THE
TENTH ANNUAL CONFERENCE OF THE

VOLUME X

PERSONALIZING LEARNING SYSTEMS: ECOLOGIES AND STRATEGIES

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IN MEMORIUM

Elizabeth S. Johnson
Past President Western College Reading Association

A teaching career and a great love for students led her across several states. Her work in many different capacities, teacher, counselor and reading instructor, has made its mark upon many. Students and colleagues alike have felt keenly her friendship and love and they referred to her affectionately as "Liz".

She was an integral part in the planning and development of Diablo Valley College from its inception in 1950. As counselor and then as reading instructor, she has worked diligently to strengthen the Diablo Valley College and the reading program. It was due to her efforts that reading classes at Diablo Valley College became so popular. Liz built a strong reading program base and a cadre of excellent reading instructors.

Liz Johnson was instrumental in organizing the Northern California College Reading Association and served as Chairperson for that organization, she also served two terms on the board of the College Reading Association. Liz was active in the formation of Western College Reading Association in which she served as President, Treasurer and Secretary. She always felt that working in reading organizations was a way to strengthen reading instruction throughout the United States.

She had a minor heart attack on Thanksgiving Day, 1976, yet she was hospitalized only briefly. Upon returning from the hospital in regular "Liz" manner, she went back to work a little tired but ready to do what she loved most — TEACH. On January 20, 1977, Elizabeth Johnson died suddenly at her home in Rossmoor while making plans for teaching her classes as a part-time instructor following retirement.

As an educator, she was strong and well-liked. As a friend, she was beloved by many. She is and will be sorely missed.

Paul M. Hollingsworth
University of Nevada

PROCEEDINGS OF THE
TENTH ANNUAL CONFERENCE OF THE

THEME:
PERSONALIZING LEARNING SYSTEMS:
ECOLOGIES AND STRATEGIES
March 31, April 1, April 2, 1977

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PREFACE

Thirty-five manuscripts were selected from forty-six papers by the editorial team for inclusion in this volume. All of these, except one, were presented in Denver at the Tenth Annual WCRA Conference; the exception was accepted for presentation, but the author was unable to attend the conference. In five instances, abstracts were selected to represent manuscripts available from the authors, whose addresses are included. All papers were read by at least three editors. While the editorial team assumes full responsibility for editorial determinations, the ideas expressed in the following articles are the authors' own. Hopefully, whatever might be lost in the admittedly arbitrary organization of the Table of Contents is recovered in the convenience to the reader.

The following pages include an extensive review of the vocabulary research; four research reports; five position papers, including two views from the WCRA Conference Keynoters and two guidelines for organizing an accountable Reading Skills or Learning Assistance Center. One prescription for successful grantsmanship and many descriptions of adoptable and adaptable techniques and programs, including those geared to special populations such as law and engineering students, international students, and state employees are also included. The editorial team sincerely feels this anthology reflects the very best of WCRA.

Gwyn Enright
7/8/77

LEARNING ASSISTANCE: CHARTING OUR COURSE

11th Annual
WCRA Conference

Queen Mary
Long Beach, California
March 16 — 19, 1978

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KEYNOTE ADDRESS:
MASTERY LEARNING AND POLITICS:
THE HONEYMOON IS OVER

Jon Hagstrom
Columbia Junior College

In the last few years there has been a renewed interest in the relatively old educational concept of mastery learning. Instructional models based on this concept have been developed most vigorously in the learning labs, assistance centers, and skills centers administered by the very people attending this conference. Your successes in using this system of instruction have inspired those in other disciplines to rethink their own methods. For those who may not be familiar with some of the conceptual characteristics of the model, let me make some distinctions. Cross, in her book, *Accent on Learning*, says:

> Mastery learning refers to the pedagogical concept that learning must be thorough — one unit must be learned to a high level of competency before the next unit in a sequence is tackled. The concept of mastery learning is revolutionary because it upsets traditional ways of thinking about education. Those two stalwarts of the school system — grades and semesters — become almost meaningless when mastery learning is implemented. Ideally, all students would earn A grades, and they would take as long as necessary to accomplish this level of mastery. (2:77)

The concept of mastery learning is the foundation for the variety of individualized instructional approaches that have dominated learning skills centers for the last decade. And, whether the instructional model is P.S.I. (Personalized System of Instruction), A.T. (Audio Tutorial), Computer Assisted Instruction, a combination of any two or all three models, or variations on these models, they generally share the following five characteristics of the mastery learning concept:

1. A formal statement of objectives.
2. Instruction from teacher-sequenced materials.
3. Frequent testing to diagnose progress.
4. Remedial instruction based on progress diagnosis.

5. Criterion referenced final evaluation.

The advantages of this revolutionary approach to teaching and learning are many, and are particularly beneficial to the "new learner" defined by Cross (3:1-16):

> I believe that mastery learning is the critical missing link in the education of low achievers. Its advantages are both cognitive and objective: 1) it lays a foundation for future learning by insisting that one unit must be mastered before the student may proceed to subsequent learning; 2) it demonstrates to poor students that they are capable of doing good work. To most new students, those two critically important experiences are missing from traditional education. (2:78)

The success of practitioners who use an appropriate instructional model based on the concept of mastery learning is heavily documented in Cross' book and throughout recent learning literature. The possibility that instructional models based on mastery learning are another educational "fad" is also refuted in this same literature. As one writer said, "The use of some form of modular instruction is probably the fastest-growing trend in the history of Western education." (2:75) In addition, a 1974 survey showed that almost three-fourths of the community colleges in the nation reported some use of self-paced learning modules. (2:75)

Instructional models based on mastery learning concepts have not been perfected for all disciplines, and it may be found that some subjects are better learned when they utilize other models. But it is also true that in those subject matter areas where mastery learning models have enjoyed the greatest success, there has been recorded a student achievement success ratio that was seldom gained under traditional systems. And while we practitioners in the art of teaching may hail this breakthrough as a milestone in the history of pedagogy, let us also restrain our enthusiasm long enough to ponder how this milestone may effect not only the students we serve, but also the general public.

There are, in my opinion, two disadvantages of mastery learning models that deserve our special attention as we either contemplate initiation of such an instructional format or seek to modify or otherwise expand existing instructional models based on mastery learning concepts. The first disadvantage is the cost.

Because the mastery learning model is, as Cross has stated in her definition of the concept, ". . . the critical missing link in the education of *low achievers*," (italics mine) and because, as Mueller and Block have pointed out, the burden for student learning under this model shifts from the student to the teacher, (4:42) there is likely to be within any institution that implements this model a real confrontation between faculty for the available finite instructional resources since not all faculty deal with low achievers. The successful use of the mastery learning model is an expensive proposition in any school setting, when compared with more traditional models. It is expensive because of the amount of instructor time needed to

create meaningful behavioral objectives — and perhaps constantly revise them — because of the inordinate amount of time and expense that is required to find, purchase, or write the kinds of materials that will most appropriately meet the systematically sequenced instructional needs of the student; because of the time required to write and administer the frequently given diagnostic tests and provide the necessary remedial instruction; and because of the extra personnel that are usually found to be necessary to the smooth operation of this instructional model. I am thinking here of teacher aides, peer tutors, professional tutors, and other personnel. This is a disadvantage because no matter how sound the theory base or how carefully documented the successes are, those managers who control and allocate the instructional resources in an institution will have to consider carefully the equitable distribution of those resources for the *whole* institution. If less costly instructional models are proposed that will accomplish similar ends, you know from your own experience which will win out.

Let me suggest, therefore, as we deliberate these next few days on the topic of Personalizing Learning Systems: Ecologies and Strategies, that one of the strategies we use is to find instructional models that are not only educationally sound but economically feasible.

A second disadvantage of the mastery learning model that deserves our attention is the possibility that we may be deceiving our students and our public relative to the grading practices that result from most mastery learning instructional models. By deceiving our students and our public, I mean that we may, using mastery learning logic, be awarding students grades which were earned under a system whose criteria and standards are significantly different from that generally understood by either students or the public.

Grading student performance has always been one of the most frustrating tasks a teacher performs. But we, as educators, are obligated to do so. As one writer said, "Educational institutions have two major functions: education and certification of competency." (4:41) By grading our students we are certifying their relative competency in our area of speciality. Under traditional or nonmastery systems, students are awarded grades based on their measured level of performance over a broad content domain. If these tests are properly constructed, that is content valid, they measure student performance on randomly selected items from that larger content domain. In a strict sense, then, it can be postulated that these students in a nonmastery setting have actually learned more than what they were tested on.

Such is not the case in the mastery learning model because the content domain is restricted to much smaller instructional units which are closely tied to the behavioral or instructional objectives for that unit. And while it may be argued that this characteristic is precisely why the mastery learning model is advantageous, particularly for the low achievers, it must also be recognized that an "A" level of achievement can be attained under the mastery model over a protracted time. This generous time unit is where we are deceiving our students and our public.

Our nine years of experience at Columbia College with audio-tutorial (A.T.) instruction in a variety of disciplines has shown us the problems related to this generous time unit. We have learned:

1. That students whose learning styles were compatible with A.T. instruction do, indeed, profit by the instruction.
2. That low achievers in fact find through this format a means of proving to themselves and others that they can learn better than under traditional methods.
3. That student motivation is the important key to success whether a low-achiever or not.

Yet, during our first year of using this mastery learning instructional model we found that although both students and staff were excited and enthralled by the concept, the hardware, and the promised outcomes, the students, nevertheless, put off working until the last week or two of the quarter. And even though provisions were made as flexible as possible within a fixed-time instructional quarter for students who did not complete a unit of instruction to carry that instruction into the next quarter, it soon became apparent that some students would never finish an instructional unit. We then devised a time frame for students to give them an idea where they should be at various times during the quarter in order to successfully finish an instructional unit within a reasonable time period — a reasonable time period that did not necessarily coincide with the division of quarters. This additional component helped many students and relieved much anxiety on the part of the staff.

Follow-up studies of both our graduates and our job-outs have provided us with additional information relative particularly to the long-term effectiveness of our A.T. programs. Some interesting patterns have emerged from this information. Many transfer students report that the college in general and A.T. in particular "turned them on" to learning and they will be "forever grateful." This is nice to hear. Data from personal interviews and questionnaires, however, began to point out that, while many students enjoyed educational successes at our college and continued to do so at transfer institutions, they somehow felt an uneasiness outside an A.T. environment. Many of these students upon leaving our college, whether they transferred to four-year colleges or universities, or joined the work force in our community or elsewhere, felt ill prepared to confront the "real world" of fixed-time organization. Students using the A.T. format were psychologically conditioned to believe, it may be suggested, that the generous time element would usually be available to them for task completion problems. It is in this sense that we may be deceiving our students. Their levels of expectation are heightened and somewhat distorted by learning, however successfully, under an instructional model that is not based on performance expectations in a world outside of academia. The public is likewise deceived — and when I say "public" I mean the employers of our graduates and job-outs — because they expect grades, when they review transcripts and other

evaluation performance documents, to be somewhat predictive of potential job performance.

The two disadvantages I have described for instructional models based on mastery learning concepts, namely excessive cost over some alternative instructional models and the somewhat curious psychological spinoff for some students heavily involved in learning under this model, are by no means to be taken as an indictment against the whole concept of mastery learning. Rather, these observations should be viewed as a self report of one person from a limited experience base. The possibility that some features of the mastery learning model need our special attention is important to the degree that there is a very real probability that in the near future we are going to be held more educationally and fiscally accountable for our methods and results than we ever have been before. And unless all of us in education assume a posture of dedicated and knowledgeable leadership, and exercise internal accountability practices, accountability will be pressed upon us from agents and agencies outside of the educational field.

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KEYNOTE ADDRESS: MEETING THE INDIVIDUAL NEEDS OF STUDENTS

Alton L. Raygor
University of Minnesota

Back in about 1952, when I first got involved in the college reading field we thought we were doing a pretty good job of meeting the individual needs of students. Looking back at those times now, of course, we realize that most of us were not well trained for what we were doing, that our materials were inadequate, that we were operating with an extremely limited body of knowledge, and that many of the students were not being helped much.

We have come a long way since then. One major area of growth is the *training* of Basic Skills Counselors. A few years ago very few people had any idea what a college reading and study skills counselor was. Now we routinely get job descriptions with a pretty good set of requirements. Many college administrators are now aware that there are people who are trained to do this work, even though they are still hard to find.

Another area is the underlying body of *knowledge* about the reading, learning, and human growth processes. Increased knowledge has come out of our own field, as well as other disciplines. Perhaps the most noticeable changes have to do with the way we regard how people learn from prose material. The many studies by Rothkopf, Barron, Frase, and others in the area now labeled *mathemagenics*, have changed the advice we give students. For example, we now know that having students ask questions and read to answer them (as we used to suggest in the old SQ3R formula) is probably not a good idea. It produces better retention and mastery of that particular question, but with a clear decrement on other learning. Another example of a change in the advice we give students is in the use of underlining as a study technique. Most people used to discourage what turns out in the comparison studies to be an excellent study technique.

Another major area in which there has been great improvement is in *materials*. The whole programmed instruction and educational technology

movement has produced much more careful development of tests and materials. In a few cases, such as the McGraw Hill Basic Skills System which I spent six or seven years developing, we now have tests and materials integrated into the same system, so we can determine what each individual student needs, then give him exactly what he needs without having to worry about the lack of correlation between the tests, the materials, and the outcome measures. Recently we have seen development of materials especially designed for certain special populations such as ethnic minorities, disadvantaged students, women, and older students.

In *programs* we have seen several changes that represent progress. One is the increasing number of programs based on a diagnosis and treatment model rather than the old mass-treatment model. It is encouraging to know that the college faculty member who thinks that the student who needs basic skills help "doesn't belong in college" is a member of a rapidly diminishing minority. There is, too, the growing realization that an adequate program must take into account the affective, as well as the cognitive needs of students.

Sources of reading problems

The sophisticated person working in a reading program soon comes to recognize that there are many sources of reading difficulty and that some clients exhibit clear evidence of psychological problems highly related to reading performance. An example is the student who has difficulty with concentration, and who comes to the reading program prepared to be "taught" to concentrate. Interviews with such a person usually reveal that he does not necessarily lack skill but that he usually does have a vocational, an educational, a motivational, or possibly a severe emotional problem.

Some clients in a reading program have a long history of difficulty in reading that dates all the way back to elementary school. The very act of "learning to read" is the stimulus for great anxiety for some people, and often such anxiety interferes seriously with the learning process. Adequate diagnosis in reading requires not only measurement of skills in reading, but a psychological evaluation as well, to determine the causes of low achievement and to identify the proper treatment.

To understand the point of view that *counseling has an important role in skills work*, one need only consider the functional similarity between the role of the skills worker and the role of the counselor. Both situations have in common three important elements: (1) a client faced with a problem beyond his ability to solve; (2) a psychologically trained person willing to deal with the problem, and who has *rapport;* and (3) a willingness on the part of the worker and the client to work together toward a solution of the problem.

It is this functional similarity between the skills counselors and the psychotherapist that leads some of us to talk about what we do as "skill therapy." Providing a situation in which a client can get real evidence of

progress in an area of major concern is clearly a therapeutic process in many cases.

The nature of emotional involvements in reading

Emotional problems manifest themselves in reading and related behavior in a great many ways:

1. *Distortion of Reality.* The student may over-evaluate or under-evaluate his reading skills. He may also distort reality by believing that reading ability is somehow innate and that nothing can be done about it. ("I have always been a poor reader, and always will be.")
2. *Unwillingness to Risk.* The student may show evidence of lack of effort due to unwillingness to risk trying very hard to improve, using his reading problem as an excuse for poor performance in school.
3. *Compulsive Reading.* The student may feel compelled to read in a very careful, cautious manner, word-by-word. He may verbalize a desire to "speed up" his reading, but resists any effort to make him abandon his rigid, compulsive approach. In fact, he may even indicate that he feels it is "sloppy" or even morally wrong to read without what he feels is adequate comprehension. ("A job worth doing, is worth doing *right*," etc.)
4. *Nervousness and Tenseness When Instructed.* The student may be reliving anxiety associated earlier with learning to read.
5. *Refuses to Read.* The student rejects reading as a mode of learning and tries to get along without doing any more reading than he is forced to do. He may even elect a distorted pattern of "non-reading" courses in college.
6. *Lack of Concentration.* This is probably the most common indicator of emotional problems which are related to reading and study difficulties.
7. *Concern about Reading.* He may be over-concerned about the difficulty he is having and so anxious that he cannot give his full efforts to improvement. On the other hand, he may be under-concerned about it and not very highly motivated to improve.
8. *Fear of Discovery.* The student may be afraid that others will find out what a poor reader he is. This can make him very quiet and withdrawn (even secretive) in situations in which discussion and participation would ordinarily be to his benefit.
9. *Transference Symptoms.* He may not want to admit, even to himself, that he has trouble with reading skills and he may try to place the blame on something beyond his control, such as vision, hearing, or other physical difficulties.
10. *Giving Up.* He may appear to have surrendered to his problem and may seem to be convinced that nothing he does will help him improve.
11. *Escapes.* The student may find all sorts of excuses for not reading and studying. The ingenuity and the twisted logic used by students to rationalize their study interruptions sometimes indicates great

creativity which could be channeled into more productive uses.

12. *Blame-Placing.* He may complain bitterly about his weak background, poor teachers, poor schools, and anything else that will allow him to keep his self respect intact in the face of his reading problem.
13. *Examination Panic.* The poor reader usually knows that he doesn't get as much out of his study time as the good readers, and as a result he usually feels less well prepared for examinations. His weakness in reading raises his anxiety, which in turn makes him less able to deal with his academic work. This vicious circle is sometimes very difficult to interrupt without a great deal of contact with the student.

Turning now from this discussion about affective elements in student problems to some of the implications for programs, I would like to suggest ten characteristics of effective college reading programs. There may be good programs that do not share all of these characteristics, but let's look at what an ideal program might be like:

1. *Individualized Instruction:* Our ideal program involves primarily individualized instruction, with a minimum of stand-up teaching.
2. *Diagnosis and Treatment Models:* Each student is given the help that he needs, based on some diagnostic information. In addition, a constant assessment takes place to be sure that the initial diagnosis was accurate, and that the treatment or instruction continues to meet the needs of the student.
3. *Counseling.* Ideally, the person working with the student is a trained counselor. At least, the staff person should be able to recognize important affective elements in the situation and can make referral to adequate counseling services.
4. *Flexible Schedules:* The program has enough scheduling and academic planning flexibility to meet the needs of the student in the context of other academic and nonacademic demands, goals, and requirements.
5. *Self-Paced Instruction:* Each student is able to operate in the program at his own appropriate rate of work.
6. *Flexible Grades and Credits:* The program has adequate flexibility in terms of grades, credits, and general academic measures of progress to meet the varying needs of each student.
7. *Competency-Based Objectives:* The instructors or counselors know what they are teaching and have clear objectives for each student. In addition, the progress toward individual goals is constantly monitored.
8. *Appropriate Program Evaluation:* Evaluation of the effectiveness of the program is made on the basis of the extent to which individual student needs are met, not overall test data, money spent, credits generated, or other administrative measures.
9. *Programs Relevant to Academic Goals of Institutions:* The program is having an impact on the mainstream efforts in the institution. The staff are in constant contact with content teachers and are seen as valued consultants in the educational process. Examples of these interactions are peer tutoring programs, readability consultation ser-

vices, examination files, and use of adjunct course materials in learning centers.

10: *Trained Staff:* Our ideal program has a staff that is well trained in several areas. They know how basic skills are developed in elementary and secondary school. They know how to diagnose and treat problems that arise. They have good foundations in applied psychology. They have enough background in measurement and statistics to do good testing, make meaningful evaluations, and to read the professional literature with profit. The affective needs of the students are met by the staff because the staff has training in counseling therapy and technique, at least to the degree that it enables them to make effective referrals.

Most college reading programs of today are not likely to meet all those criteria, but we are much closer to the ideal program than we were even a few years ago.

I conclude with a final comment about the role of college reading programs in a larger context: *people in college basic skills programs have a very central role in social changes that are taking place in our society.* While recent trends in college populations are often seen as a burden by some academic faculty, they offer a real opportunity to assist in the democratization of higher education and in fundamental social change. College reading teachers may not think of themselves as major forces in a social revolution, but they are. The students who need them the most are the ones who represent great alterations in our concept of the responsibility of a democratic society to its members. The better our programs; the more humane, the more efficient, and above all, the more tailored to all the needs of the individual person, the more likely those great social goals become.

THE USE AND EFFECTIVENESS OF SYSTEMATIC DESENSITIZATION AND STUDY SKILLS METHODS IN A TEST ANXIETY REDUCTION PROGRAM

Marshall H. Bloom
Jann F. Segal
California State University, Northridge

For over a decade much research has been conducted in the area of test-taking anxiety. The research still continues in an effort to discover forms of intervention that would best alleviate this difficulty for college level students. One of the most common is systematic desensitization, originally developed by Joseph Wolpe (22). Many researchers have carried out studies comparing systematic desensitization to other test anxiety reduction methods such as group insight therapy (14), implosive therapies (15), and cognitive modification (16). Hall (11) discovered that certain variations such as a massed administration of systematic desensitization, as well as vicarious methods of desensitization, were as effective as the more traditional procedure, and more effective than a no treatment control group. The Suinn Test Anxiety Behavior Scale showed them to be significant at the .01 level in reducing anxiety.

For several years, the Learning Resource Center and the Counseling Center at California State University, Northridge, have worked together closely in reducing the test-taking anxiety of students. In the Fall 1976 semester, the two campus agencies jointly sponsored a test anxiety reduction program for two groups of students. One group was given systematic desensitization procedures, the other group was instructed in study skills methods of reducing test anxiety. Our belief was that the group utilizing systematic desensitization would be less test-anxious after treatment than the group exposed to study skills methods.

Design

The two groups were conducted over the same six week period of time. Each group met for approximately fifty minutes a day, two times a week.

Both groups met in the Learning Resource Center. Group A (n = 6) was conducted by a clinical psychologist from the Counseling Center and a study skills counselor from the Learning Resource Center and was, by use of systematic desensitization, aided in the reduction of test-related anxiety.

A waiting list control group, originally agreed upon by group leaders for the sake of experimentation, was decided against later for ethical reasons. At a time in the semester when it was not possible to provide another group, it seemed unreasonable to first offer help to students and then deny it for control group purposes.

Instrumentation

Students in both groups were pre-tested and post-tested with the same measures. The Suinn Test Anxiety Behavior Scale (STABS) was administered to measure the amount of test-related anxiety felt by each student while the IPAT Anxiety Scale Questionnaire, derived from Form 16PF, was given as a general fear measure. Along with the pre-tests, students in both groups were also asked to complete a Personal Data Sheet, so the group leaders could get a general idea of the nature of the group population and each person's history of test anxiety. Students in both groups were also post-tested with the STABS and IPAT. At the time of post-testing, the students also completed an evaluation form. This questionnaire, taken largely from Wisocki (21), had a list of test-taking situations. The students were asked to rank their anxiety level in these situations as they remembered it to be before they started the group and as it was during the six weeks they participated in the group.

At the beginning of the following semester, students from both groups were sent another questionnaire. This follow-up evaluation form was identical to the post-group questionnaire except that the emphasis was on the amount of anxiety they felt in test-taking situations before the group compared to the amount they felt after completion of the group.

Although semester-later GPAs were considered as a possible measure of external performance, a decision was made to defer examination of this type of outcome criteria because of the belief that possible contamination by other external factors could diminish the sensitivity of the measure.

Procedure

Group A, which utilized systematic desensitization, collectively constructed a hierarchy of twenty-two items which they successfully completed during the six week period. The first two sessions were devoted entirely to discussion of the procedure, construction of the hierarchy, and listening and responding to a tape which directed the students into a less anxious state via deep muscle relaxation (13). This tape was duplicated for all group members, who were instructed to practice with it at home as well.

With the exception of the first two sessions, the students in Group A began each session by immediately going into a relaxed state. They were then asked to visualize the first item on the hierarchy for ten seconds. If any of the group members felt anxiety while visualizing the scene, they were asked to signal the group leaders by raising their right hand. If any student signaled, the entire group was told to terminate the visualization and to return to relaxation for ten seconds. Then, they were asked to visualize the same scene again. If any group member felt anxiety during the repeated visualization, he or she terminated all visualization for the remainder of the session while the others continued working up the hierarchy. Although this modification in procedure may not be a standard method in group systematic desensitization, it was helpful in allowing as many students as possible to work up the hierarchy in the six week period. At the conclusion of the six weeks, every student was able to work up the hierarchy several times without experiencing any anxiety during the visualization time.

Group B, which exposed students to study skills techniques for reducing text anxiety, covered basic study skills and test-taking methods. Books such as Millman and Pauk's *How To Take Tests* and Carman and Adams' *Study Skills: A Student's Guide For Survival,* were also recommended for student reference. Related handouts (such as "Important Words in Essay Questions" and "Everything You Always Wanted To Know About Test Taking But Were Afraid To Ask") were distributed and discussed. There was also group activity, such as an introduction to and massed practice of the SQ3R method of reading. During several group sessions students participated in taking a few practice multiple choice tests, such as the "Test For Test-Wiseness" (9). Besides information on objective exams, students were also given tips on how to take essay exams, open book and oral exams. Although Group B concentrated primarily on study skills methods, one session was devoted to an introduction to brief relaxation techniques (2).

A deliberate attempt was made to minimize any possible overlap between the two treatment methods in an effort to make a more definitive test of one treatment compared to the other. To test for pre-test differences between groups an F test was employed. The non-significance of the F ratio led to the conclusion that there was homogeneity of variance. Therefore, both groups were considered to be samples of the same population.

Results

To test the hypothesis that systematic desensitization would reduce anxiety more effectively than would study skills methods, group members were given pre-tests and post-tests on both the STABS and IPAT, and the differences between pre-tests and post-tests associated with each method compared to one another by use of a t test for independent groups. Differences between methods were significant for the STABS ($p < .05$) only.

In self-report data collected from the follow-up evaluations, student responses indicated that the groups were helpful in relieving test-related

Table 1

	GROUP A						GROUP B				
	Not At All	A Little	Fair Amount	Much	Very Much		Not At All	A Little	Fair Amount	Much	Very Much
1. Getting up in the morning the day of the exam.	0%	25%	75%	0%	0%	Before Group	7%	31%	23%	15%	23%
	25%	50%	25%	0%	0%	After Group	15%	38%	47%	0%	0%
2. Thinking about the exam.	0%	25%	50%	0%	25%	Before Group	7%	23%	38%	15%	15%
	0%	50%	50%	0%	0%	After Group	7%	47%	38%	7%	0%
3. Looking over the exam.	0%	0%	25%	75%	0%	Before Group	0%	23%	38%	31%	7%
	0%	25%	50%	0%	0%	After Group	7%	47%	23%	15%	7%
4. Seeing a question you're not sure of.	0%	0%	25%	0%	75%	Before Group	0%	7%	47%	31%	15%
	0%	25%	50%	25%	0%	After Group	7%	70%	23%	0%	0%
5. Seeing a whole section of the exam you're not sure of.	0%	0%	0%	0%	100%	Before Group	0%	7%	31%	23%	38%
	0%	0%	50%	0%	50%	After Group	0%	15%	38%	31%	15%
6. Thinking of the results of the exam afterwards	0%	0%	75%	25%	0%	Before Group	0%	7%	31%	31%	31%
	0%	75%	25%	0%	0%	After Group	15%	15%	47%	23%	0%

*Total substantially less than 100 due to fewer responses.

Table 2
GROUP A

	Not Helpful	A Little Helpful	Fairly Helpful	Very Helpful	Extremely Helpful
Pre-testing anxiety measures	0%	50%	50%	0%	0%
Deep muscle relaxation	25%	0%	0%	25%	50%
Desensitization procedures	0%	0%	0%	100%	0%
Group discussion	0%	50%	25%	25%	0%
Post-testing anxiety measures	0%	50%	50%	0%	0%

GROUP B

	Not Helpful	A Little Helpful	Fairly Helpful	Very Helpful	Extremely Helpful
Pre-testing anxiety measures*	7%	31%	38%	15%	0%
SQ3R method of reading	0%	23%	31%	31%	15%
Group handouts	0%	23%	47%	15%	15%
"A Test for Test-Wiseness"	0%	31%	23%	31%	15%
Tips on taking multiple choice tests	0%	7%	38%	38%	15%
Tips on essay tests	0%	15%	23%	47%	15%
Relaxation tape	7%	7%	31%	15%	15%
Five minute relaxation technique	0%	7%	23%	31%	38%
Tips on studying for open book exams	7%	23%	31%	38%	0%
Post-testing anxiety measures	7%	15%	47%	31%	0%

*Total substantially less than 100 due to fewer responses.

anxiety. An 80% return rate showed students favored the treatment received. Members of both groups A and B claimed to be "a little more relaxed" while taking exams since completing the group. Students from Group B tended to claim they did "a little better" on exams since completing the group. Group A, however, claimed they were currently doing "about the same as before the group."

Students in both groups were asked to evaluate the amount of anxiety they felt in specific test-taking situations since completing the group in terms of none at all, a little, a fair amount, much or very much. For the most part, the contents of the evaluation form were taken from Wisocki (21). With minor exceptions, this self-report data was consistent with the same questions asked immediately after completion of the groups (Table 1).

All students in both groups who claimed to have anxiety-related physical problems (such as stomach cramps, vomiting, etc.) claimed that the intensity of the physical problems lessened since completing the groups.

As a part of the questionnaire students were also asked to evaluate the helpfulness of methods and procedures used in their groups according to helpful, a little helpful, fairly helpful, very helpful and extremely helpful (Table 2).

Besides questions asking students to rate the amount of their anxiety, there were several open ended questions on the evaluation form. In both groups there were some major, though almost identical, trends in answers. When asked how the group had helped them last semester, students from both groups tended to claim they felt more relaxed while taking their final examinations. Another important claim from students of both groups was that their attitudes had changed.

When asked how the group had helped them so far this semester, those who had taken mid-terms by the time they received the questionnaire claimed they felt less anxious. Criticisms of the group were minor; a desire for longer sessions and a complaint regarding the room they met in were common to both groups.

Conclusions and recommendations

The overall results, including those relating to both the statistical comparisons between groups and self-report data, demonstrate that the systematic desensitization procedure has advantages over other methods designed to help students reduce test-taking anxiety. We feel that this finding could be stated with greater certitude were the sample sizes of the two groups more equal. It is therefore recommended that for future studies random sampling procedures be utilized if possible to help control group size. In this light, it is suggested that future research also be carried out at an on-campus setting other than a student-oriented learning or counseling-type agency, where random selection procedures are not always appropriate.

Since it is our firm belief, based on the results of the study, that univer-

sity level students benefit from different forms of test-anxiety reduction programs available to them, it is also recommended that research utilizing systematic desensitization, and other anxiety reduction methods, be continued in the future.

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VOCABULARY INSTRUCTION AT THE COLLEGE/ADULT LEVELS: A RESEARCH REVIEW

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Council of Teachers of English sponsored attempt to find the "best method(s)" of teaching vocabulary led to an extensive analysis of more than fifty studies with experimental groups ranging from elementary through adult levels. Among the committee's conclusions and recommendations summarized by Pettey and others (22) were: (1) that there was *no* one best method of teaching vocabulary, (2) that "doing something" about vocabulary teaching seemed superior to "doing nothing" about it, (3) that there was some indication that a combination of methods was superior to a single method or technique and (4) that further research in vocabulary instruction was recommended.

With the purpose of looking critically at more recent research for possible guidance relative to designing and carrying out more effective programs at specific levels, an extensive literature search was conducted. Fifty studies were located which met the following criteria: (1) studies were experimental rather than descriptive, (2) direct teaching of vocabulary was a central focus, (3) studies were published in 1950 or after, and (4) students involved were intermediate level or above.

A preliminary analysis of the fifty studies located indicated that the investigators had a number of different objectives in mind. Also, variables explored as possible facilitators to vocabulary growth included not only application of various techniques such as those advocated by Dale (12), but also involved variations in approaches, types of materials used, method of presentation, consideration of teacher effectiveness, and attention to the possibility of differential response patterns.

The twenty studies in which college or adult populations were involved are the focus of this paper. For purposes of looking at objectives, evaluation methods, and findings as realistically as possible, the twenty studies have been divided into two groups. The first group includes those studies in

which improvement in overall "general" vocabulary was a central objective, as indicated by the inclusion of a general vocabulary test, usually standardized and given, through use of alternate forms, before and after the instructional program. The second group includes those studies in which some particular aspect of vocabulary development was stressed, and in which evaluation consisted of an instructor or investigator-prepared test which was relative to the specific objectives of the study.

Improvement in general vocabulary

The ten studies in this section which included various college and adult populations are organized according to the techniques or approaches which were evaluated as possible facilitators to vocabulary development: (1) the use of teacher or student-selected word lists, (2) the use of scanning and/or wide reading modified to aid in the location and learning of word meanings, (3) the use of programmed materials, (4) the effect of multi-media presentations of materials and (5) the use of combinations of techniques in an instructional program. When studies contained treatments pertinent to two areas, the study is summarized in the first, and cited briefly as pertinent in the second. The summary to the general vocabulary section will include brief statements concerning characteristics of the studies, techniques and approaches that seemed facilitative, and a statement related to influence of vocabulary instruction on related skill areas.

Teacher or student-selected word lists

Learning of word lists was involved in studies by Braddock (7), Crump (11), and Komisar (18). With freshmen reading low on a university placement test, Braddock compared growth in general vocabulary resulting from learning of teacher-selected words and student-selected words from social studies texts; in both instances, general rather than specific content words were to be selected. No significant differences between the experimental groups and a "no treatment" control group were found on a general vocabulary test developed by the institution. In his concluding remarks, Braddock (7) indicated discouragement with the results, and suggested that perhaps it was not worthwhile to attempt to help students with low placement scores in vocabulary instruction.

Crump (11) encouraged students in speech classes to introduce at least one new word per week and words introduced by all students were discussed and reviewed. When compared with a control group having no such instruction, no significant differences were found on the vocabulary section of the Diagnostic Reading Test.

In the study by Komisar (18), a teacher-prepared list of words considered especially important to the understanding of concepts in a social sciences class was presented and discussed. A pre-post test was used which involved American history background, knowledge of words from tests, and

unspecified general measures of vocabulary and comprehension. Results favoring experimental over control group were not significant; however, the experimental group made consistently greater gains in both specific vocabulary and general vocabulary.

Modified wide reading and scanning techniques

Studies by Baer (4), Blevins (6), and Gnewuch (15) included the use of wide reading and scanning in the location and preliminary meaning attachment of words to be studied. Baer compared a group of undergraduate psychology students using a combination of several vocabulary techniques such as word parts, context, dictionary, and use of words learned with a "paperback scanning" method in which new words found were identified and discussed. No significant differences between groups resulted on vocabulary, rate, and comprehension measures on the Nelson-Denny test; the group using paperback scanning was signifantly superior to the other groups on reading accuracy, as measured by the Carver-Darby Chunked Reading Test.

In an Adult Institute, Blevins compared a "natural contextual" method involving wide reading with a "contrived contextual" method using commercial materials and with a class designated as Practical High School English in which a language experience-type approach was utilized. No significant between-group differences in vocabulary, comprehension, or total reading on the Nelson-Denny test were found; the "natural contextual" and Practical High School English groups showed significant within-group gains in vocabulary.

Gnewuch (15) conducted a study in which students in two reading classes and two study skills classes of college students skimmed to identify words they vaguely knew but felt they could not define adequately. One section of reading and one of study skills were given no special vocabulary instruction and served as control groups. Experimental "reading class" students made significantly greater gains in vocabulary growth as measured by the Nelson-Denny test than did the study skills and control groups. The experimenter felt that student goals and the non-credit (reading) vs credit (study skills) status of the classes were contributing factors. The effect of teacher-training and experience was also evaluated and was found to be even more influential than the treatment.

Programmed approaches

Programmed approaches were involved in two of the studies in which general vocabulary tests were used for evaluation. Alexander (2) compared a "programmed approach" and a "dictionary approach" in a study involving 90 freshmen in remedial reading classes. Both approaches included several of the techniques advocated by Dale (12): word parts, synonyms, use of context clues, and dictionary entries. Sentence construction was also included in the dictionary approach. No significant differences between groups were indicated by the vocabulary scores on the California Reading

Test; both methods were considered equally effective with reference to within-group gains.

Burnett (10) used commercial programmed books with students in an undergraduate collegiate business communications course over a 10-week period. Performance on the Diagnostic Reading Test, and analysis of writing samples indicated no significant differences between experimental and no-treatment control groups in vocabulary, comprehension, or in written communication ability.

Multi-media approach

The value of a multi-media approach featuring filmstrips vs the use of printed materials only to convey identical information and provide identical exercises was compared in the Air Force program for personnel in a remedial reading program (21). Wordcraft tests used to evaluate progress in word recognition and comprehension indicated the multi-media approach as being superior in immediate and follow-up word recognition achievement; no significant differences in comprehension were found.

In a five-session program totalling approximately two hours of instruction, Brumbach (9) taught the most often used words from the Nelson-Denny test to eighty-eight graduate students enrolled in an MA admissions seminar. An audiovisual approach, an audio approach, and a visual approach using printed materials only were compared. No significant differences between experimental groups were found with reference to pre-post performance on the same form of the Nelson-Denny test or with reference to sex, age, or major, but the group rating highest on the Graduate Record Examination gained significantly over the lowest group on the same criteria.

Combination of techniques

Combinations of instructional techniques were involved in one or more of the treatments investigated by Alexander (2), Baer (4), and Blevins (6). The "dictionary" and "programmed" approaches of Alexander both involved a combination of techniques as previously noted and, as reported, both groups showed significant within-group gains in general vocabulary. The "vocabulary expansion" treatment compared by Baer with modified paperback scanning included a number of techniques including context clues, dictionary, building of word lists, reporting of new words, and teaching of word parts. Even the "scanning" method constituted a combination of techniques in that dictionary use and discussion were included. All of the treatments compared by Blevins (6) involved technique combinations. The "contrived contextual" method involved use of commercial materials prepared to teach author-selected words as well as dictionary use, the "wide reading" method involved not only scanning but use of commercial materials (*EDL Word Clues*); and the Practical High School English approach involved a combination of reading, writing, and dictionary skills.

Summary

College/adult groups involved in studies summarized in this section included three reading improvement classes, three content-oriented classes, one psychology class group, one Master's Seminar, and two adult classes.

Standardized tests used in evaluating general vocabulary improvement included the Nelson-Denny (4 instances); the Diagnostic Reading Test, Survey Section (2 instances); and the California Reading Test (1 instance). The other three general reading tests included an institutionally-developed test, an unspecified test, and a test designated as *Wordcraft*.

Between-group differences in general vocabulary improvement were reported in two instances: (1) the study by Olson (21), in which an audiovisual approach and a *Wordcraft* test were used; and (2) the study by Gnewuch (15) in which the remaining volunteers in a non-credit reading class surpassed the control group in vocabulary growth on the Nelson-Denny vocabulary section after a program involving paperback scanning, but a group of students enrolled in a credited study skills course did not. Significant within-group growth in general vocabulary was indicated in the Alexander (2), Blevins (6) and Komisar (18) studies. No significant between or within-group differences were indicated in the other 5 studies.

In those studies in which significant between or within-group improvement differences were found, treatments which were considered as facilitative included combinations of techniques (2,6), a treatment involving wide reading (15), a treatment involving the teaching of lists of words identified as especially important to the understanding of a social studies course (18) and a multi-media approach (21). Teacher effectiveness and student goals (15) were other factors indicated as facilitative.

No significant differences favoring the vocabulary instruction groups were found on comprehension measures (4 studies) or rate (1 study) or a writing sample (1 study). A significant difference in ability to detect change in meaning was indicated for a paperback scanning method (4) as indicated by performance on the Carver-Darby Chunked Reading Test.

Learning of specific vocabulary or vocabulary-related skills

The ten studies included in this section were those in which specific objectives were identified by the investigators, and evaluation criteria consisted of instructor or experimenter-designed tests related to the objectives outlined. Objectives identified relate to: (1) learning of word parts, (2) use of mnemonic devices, (3) use or preparation of programmed materials, (4) learning of concepts, (5) learning of context clues, and (6) improving writing vocabulary through improvement in reading vocabulary.

Word parts

Variations relative to the teaching of word roots or parts were evaluated by Albinski (1) and Einbecker (13). With thirty-seven college students, Albinski conducted a series of experiments comparing the effi-

ciency of various means of whole and word part learning and found some significant superiority for the pre-teaching of stems; however, he considered the advantage too mild to advocate pre-stem teaching.

Einbecker's study involved a comparison of three methods of teaching forty words on a pre-test: (1) simply directing students to study words, (2) directing students to note and look up root words, and (3) involving students in an audiovisual approach in which meanings and uses of root words were illustrated. Groups were not significantly different in a repeat of the 40-item pre-test; the group using the audiovisual materials performed significantly better on a 100-item application test.

Mnemonic devices

The effectiveness of mnemonic devices in learning specific words was investigated in studies by Foth (14) and McNeal (20). With two hundred introductory psychology students as subjects, Foth compared the effectiveness of imagery mediators and verbal mediators vs learning of words without mnemonic or mediation instruction. Mnemonic techniques were indicated as more helpful in learning concrete nouns; no difference in learning of abstract nouns was indicated.

McNeal compared three methodology groups (repetitive, mnemonic, and unspecified) as well as two study times (five minutes and unlimited time) with reference to the learning of 35 "difficult vocabulary words." No significant differences in performance were found between the three methodology groups; the group of psychology students given unlimited time proved superior to those given the five-minute time limit on both recall and recognition immediately after acquisition, and on recognition two weeks later.

Programmed material

With fifty-three students enrolled in reading improvement classes, Brown (8) compared the use of his *Programmed Vocabulary* stressing context, word parts, and dictionary (CPD) with the use of the same material supplemented by "Pyramid Cards" designed to aid visualizing. The group with the programmed plus supplementary treatment was found superior in "memorization, identification, and application"; the group using the programmed material was superior with reference to making "generalizations."

McMullen (19) was primarily concerned with the adaptation of computer instruction to aid in the teaching of conceptually important terms from texts. Various procedures were tried with a group of college students participating. One significant difference noted was that spaced presentation of the materials was more effective than blocked presentation.

Learning of concepts

Anderson (3) and Johnson (7) were concerned with effectiveness of different methods for the teaching of concepts. Anderson involved 48 undergraduate educational psychology students in an experiment which compared the reading of definitions aloud and the composing of sentences as

aids to selecting appropriate concepts from four possible choices provided. Results of the experimenter-designed pre-post test indicated that the group which composed sentences was significantly more successful in selecting the appropriate concepts. Johnson compared four techniques for teaching concepts involved with "easy" and "difficult" words: (1) definiton; (2) sentence writing; (3) classification; (4) synonyms; and (5) a combination of the two. The group having mixed treatment performed better than any single-treatment group on a test involving writing of definitions, sentence completion exercises associated with concepts, and classification.

Context clues

Three methods for learning and applying five types of context clues were compared by Ironside (16): a deductive method, an inductive method, and a combination method in which classes were given explanations about the clue-names (deductive) and also worked exercises (inductive). All groups made gains in test scores; no significant differences were found between experimental or no-treatment control groups.

Improving writing vocabulary

The effects of improvement in reading vocabulary on the quality of writing vocabulary was investigated by Wolfe (23). In learning a specific reading vocabulary, one group of students practiced by writing sentences while the other completed multiple-choice items involving definitions of the selected words. Application of vocabulary work to writing was assessed through analysis of three pre-treatment, three post-treatment, and 6 delayed themes. Practice through sentence writing was indicated as most facilitative with reference to use and retention of words learned and in use of words of same level; no significant gains occurred in use of words of a more complex nature.

Summary

Populations in this section included two reading improvement classes, six groups of psychology or educational psychology students, and students in two content-oriented classes.

In general, the objectives were somewhat less comprehensive, the programs somewhat shorter, and the evaluation instruments more specific than in the "general vocabulary" group. Some significant treatment advantage was indicated in 9 of the 10 studies.

Treatments that were indicated as significantly facilitative for the learning of words through understanding of word parts included the pre-teaching of stems (1), an audiovisual approach to the teaching and application of use of root words (13), and the use of a programmed approach supplemented by a visualization technique (8). Mnemonic devices facilitated the learning of concrete but not abstract nouns (14). In work toward designing computerized materials, a spaced presentation of material is proved superior to a blocked presentation (19). A combination of techniques

(17) and a sentence-writing approach (3) proved facilitative with reference to concept learning. A significant effect on words used in writing was indicated by a vocabulary program emphasizing use of words in sentences (23).

Observations and implications

Facilitators of vocabulary improvement

Indications are that techniques, approaches, the teacher, and variables related to such factors as time and group characteristics may influence progress in vocabulary programs. Techniques and/or approaches which were indicated as facilitative in two or more reported programs included: (1) the use of scanning and wide reading in selection and initial learning of words; (2) multi-media presentations; (3) the use of words being learned through sentence writing; and (4) various combinations of techniques and approaches. Teacher training and effectiveness were cited as more influential than treatment in one study which also indicated that student goals may influence program results. The possibility that students in different performance levels on intelligence or related measures might respond differently to the same treatment was indicated in one study. The concept of the "meaningfulness" of the vocabulary to the student was not tested experimentally; however, students learning teacher-selected words important in the understanding of course concepts proved successful, where no significant differences were indicated in two other studies involving student or teacher-selected word lists.

Effect of vocabulary instruction on related skills

No significant influence of vocabulary improvement was indicated on improvement in reading comprehension or rate. However, accuracy in identifying changes in meaning was significantly improved in a program involving paperback scanning. One study indicated that improvement in reading vocabulary resulted in improvement in writing vocabulary for use of exact words or similar level words learned; no influence was indicated in the other study.

Evaluation instruments

Between-group differences were indicated in two of ten studies in which standardized vocabulary tests were used as evaluation instruments and in nine of ten studies in which specific (criterion related) measures were used. The fact that goals were usually broader in the studies involving standardized tests would no doubt be a factor involved. Nonetheless, other considerations seem worthy of mention. First, if the number of new words which needed to be learned in order for even one of them to "randomly" appear on a post-test involving fifty synonym choices was mathematically calculated, the logical expectation of significant improvement in a semester or less might be more remote than has been thought. Second, since word part

knowledge and context clues are often stressed as aids in determining meanings in context, it then seems somewhat incongruous to test improvement by choosing synonyms out of context. The usual standardized vocabulary test also ignores multiple meanings of words and the possibility that the student could now "recognize" in context a word he did not know at all before. Perhaps evaluation should include both types of instruments.

The practitioner and the researcher

Indications were that a number of studies, particularly those in educational psychology and psychology classes, were "set up" to test a particular hypothesis regarding some phase of vocabulary development. Relatively few available studies seemed to be the "natural outgrowth" of on-going vocabulary programs in college programs. If the practitioner in college reading could either double as researcher with reference to evaluating the effectiveness of his own programs, or work cooperatively with more research-oriented staff members, the following advantages could result: (1) instruction in vocabulary could be more readily improved on the basis of "what worked" and "what didn't work" even in the process of instruction with a particular class (5); (2) optimal treatments for groups with identifiable characteristics could probably be developed; and (3) research questions with important ramifications for the practitioner, such as the relative benefits of teaching vocabulary separately or as part of a broader reading comprehension program, could be dealt with more effectively.

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COME MEET THE WHITE WRAT* THE DIAGNOSTIC SPELLING TEST: A MODIFICATION OF THE WIDE RANGE ACHIEVEMENT TEST, SPELLING (LEVEL II)

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The Wide Range Achievement Test is widely used as a measure of academic skill development. It is often used not only to provide a measure of academic functioning level, but also to determine through subjective psychological evaluation the kinds of errors made by learning-disabled students.

With the permission of J. Jastak and Guidance Associates (2), the Diagnostic Spelling Test (DST) (1), a multiple-choice variation of the WRAT Spelling Test (level II), has been developed as an aid in differential diagnosis of learning disabilities. Spelling is a complex task, requiring long-term memory for visual symbol sequences, which must correspond to the auditory sequences which they represent, plus the motor ability to translate the visual sequences into visual-motor equivalents. A multiple-choice spelling test is essentially a recognition-association task, with limited demands on the memory and on visual-motor responses. It, therefore, makes possible more direct evaluation of the ability to associate the spoken word with its written equivalent. By comparing performance on a recognition task with the more complex reformulation task required in spelling the same words, it becomes possible to identify difficulties in the auditory-visual integration process which may be obscured in the conventional form of the test.

In most multiple-choice tests the incorrect answers are, in effect, wasted, since they provide no readily useful information in themselves. By formulating incorrect alternative spellings to reflect specific problems characteristic of the work of the learning-disabled, it then becomes possible

*So-called because during an experimental testing period the WRAT Spelling Test (Level II) was printed on pink stock, while the DST was printed on white.

to determine the kinds of error patterns that may be typical of particular groups or individuals. This multiple-choice test discriminates between normal and disabled learners, and useful diagnostic information is obtained from coded error responses. The auditory-visual integration process is not limited to spelling alone, but is an important aspect of all reading and written language functions.

The Diagnostic Spelling Test (DST) utilizes the WRAT Level II spelling list in a four-alternative multiple-choice format. Each incorrect alternative is designed to reflect a specific type of spelling problem frequently described in the literature as typical of disabled learners and not found in the general population. One incorrect answer contains a sequence reversal, one omits a sound or syllable, and one contains a gross sound substitution. It must be emphasized that none of the incorrect alternatives reflects what might be called "normal" spelling errors, such as double letters, silent letters, or soft vowel sounds that could be represented by more than one letter. However, in order that the nature of the error not dictate completely the pattern of the alternatives and perhaps set up some type of response set, the alternatives are somewhat disguised so that, for example, the word containing an omission is not always shorter in length than the other choices.

Results of preliminary standardization of the DST at the high school level

Preliminary standarization was done on selected regular classes in the Fullerton Union High School District, plus students in a class for the gifted (MGM), students in classes for educable mentally retarded (EMR), and students in learning disability groups for the educationally handicapped (EH). Students in all special classes met California State requirements for placement. All students in learning disability groups have been classified as neurologically impaired and/or emotionally disturbed by both psychological assessment and medical diagnosis. However, some of these students have been placed because of emotional problems without concomitant skill defects. Therefore, the EH groups cannot be considered as composed solely of disabled learners with deficiencies in skill areas.

The results indicated, first, that statistically significant differences were obtained among the various groups on the WRAT Spelling Test (Level II). A consistent pattern could be noted, with average groups falling about half way between the gifted and the EH groups, with the EMR still more severely impaired.

Second, statistically significant differences were also obtained among the groups on the DST (See Table 1). Because of the lack of ceiling for the gifted students, comparisons with that group are not valid. The average group showed a mean error rate of only 4 items per 46-item test. EH students showed a mean of 14 errors per test (a 30 per cent error rate), and the retarded students showed a mean of 23 errors per test (a 50 per cent error rate).

Table 1
SUMMARY DATA ON NUMBER OF ERRORS

Type of Student (H.S.)	N	No. of Errors	Mean	S.D.
Regular				
Substitution	152	275	1.81	1.97
Omission	152	190	1.25	1.71
Reversal	152	159	1.05	1.41
EH				
Substitution	156	777	4.98	3.10
Omission	156	813	5.21	3.80
Reversal	156	606	3.89	3.19
EMR				
Substitution	47	356	7.57	2.81
Omission	47	360	7.66	3.33
Reversal	47	314	6.68	3.43

Third, a significantly higher level of performance on the diagnostic test in comparison with the WRAT spelling was noted in all four groups.

Fourth, significant differences were obtained among the groups as to the number of errors made in each error classification (See Table 2). However, since the gifted students made so few errors, that group was eliminated from the comparison. Students in regular classrooms averaged 1 or 2 errors per category, EH 4 or 5 errors per category, and EMR's 7 or 8 errors per category.

Table 2
SUMMARY DATA ON TYPES OF ERRORS

Type of Student (H.S.)	N	Substitutions No. per N	Omissions No. per N	Reversals No. Per N
MGM	16	1.00	1.00	1.00
Regular	152	2.54	2.43	1.98
EH	156	5.18	5.77	4.39
EMR	47	7.57	7.65	6.82
GRAND TOTAL	371	4.61	5.11	4.05

Implications for use of the DST at the college level

The literature is replete with investigations of sequencing problems and auditory discrimination problems in connection with learning dis-

abilities. These problems are usually studied separately with different instrumentation, and little direct comparison of the actual effect of these problems in language areas is possible. The Diagnostic Spelling Test provides information on individual students which may be easily compared objectively. So, while this test was primarily devised as a tool for differential diagnosis in students with established learning problems, it has proven to be extremely useful as a rapid and reliable screening device for the identification not only of learning disabled students, but of specific problem areas for the so-called "normal" population in the community college.

Without a complete battery of tests, many of them individually administered, it is impossible to have an idea of reading problems of students in the area of substitutions, omissions, and reversals except with the DST. Most college reading instructors deal with large numbers of students, either in the classroom or the learning center. Certainly individual follow-up is indicated in many cases with use of the DST, but the information quickly obtained through use of a standard diagnostic test plus the DST will reveal within a few minutes (for an entire class) *which* students require the follow-up.

The test should take no more than twenty-five minutes, including distribution of papers and instruction. It is either machine or hand scorable, and can be administered to any number of students at one time. At our college, the instructions and the test itself have been recorded on cassette, so make-ups are no problem. The cassette version is also available in the Learning Center for testing throughout the semester.

Those of us using the DST experimentally at the college level have disregarded the "normal," "EH," and "EMR" classifications and used the test simply as a diagnostic tool to identify problems in cross-modal learning involving visual and auditory integration. These classifications, however, have profound implications in those colleges where special teachers and classes are funded through the state for educationally handicapped students (See Table 3).

Table 3
CYPRESS COLLEGE DST ERRORS
IN RELATION TO STANDARDIZED TEST SCORES

Type of Student	N	DST Total Errors	Mean	McGraw-Hill Part III (Raw)
Day (Normal)	27	78	2.9	16.0
(EH)	19	223	11.7	13.2
Extended Day (Normal)	23	86	3.7	15.2
(EH)	22	305	13.9	11.4
Total Day	46 — 41% EH			
Total Ext. Day	45 — 49% EH			

There seems to be some indication that intelligent adults develop compensatory skills when they are severely disabled readers, so that their reading scores related to comprehension are much higher in many cases than would be expected. It further appears that many readers are not comfortable with the reading process, and thus they appeal for help even though they are reading at, or close to, grade level. The DST reveals problem areas in such cases that are not apparent on a standardized reading test. Additional statistical data in this area is needed.

Standardization has not yet been done at the college level, although this test has been used experimentally at both Cypress and Fullerton Colleges in California for the past four years. Although the DST was developed and tested at the high school level in 1971-72, it has not been available for general use because of copyright problems, which have now been resolved. The authors, Jacquelyn Gillespie, D. Ed., and Jacqueline Shohet, D. Ed., are presently gathering information from testing at the college level. The authors are seeking college data to establish norms. If you are interested in being part of the preliminary standardization, please write to Dr. Jacquelyn Gillespie, 1037 Avocado Crest Road, La Habra, California, 90631. (213) 691-8594.

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READING ABILITY AND READABILITY ASSESSING THE GAP ON A LIMITED BUDGET

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Arizona College of Technology

As reading teachers, we must constantly justify our existence. In doing so, we often find ourselves facing two unspoken, and seldom challenged, assumptions.

An assumption of governing boards, administrators, faculty, and taxpayers is that reading programs function to salvage a small number of educationally disadvantaged students. Thus, when money gets tight even the best intentioned decide to cut "frills." Reading programs are often among the first to feel the pinch.

The other assumption, particularly among content-area teachers, is that the source of reading deficiencies is the reader, not the reading matter. Their solution is to remediate the reader to bring him up to acceptable standards.

How to test these assumptions on a limited budget is the subject of the study.

Setting

The study was undertaken at Arizona College of Technology in the spring of 1976. The design was derived from recommendations made by Wilbur Ames of the University of Arizona Reading Department. In an unpublished consultant's report, Ames recommended that a standardized test be administered to a "sufficient number" of students, that readability assessments of reading materials then be made, and the results compared (1:1). It was felt that such a survey would provide data upon which to base decisions regarding objectives, facilities, and materials for a new reading program. More importantly, it would provide concrete data to present to a multi-campus administration and to a Governing Board plagued by budget cuts and disinclined to approve any major expenditure for "non-essential" programs.

The questions posed were 1) Did a reading problem exist? 2) Was it confined to a small percent of students? 3) Was it pervasive enough to contribute significantly to failure and attrition rates? 4) Did the problem stem from reading deficiencies, or was it, in part, a product of unrealistic reading demands?

Limitations

A number of obstacles were confronted in what appeared to be a modest undertaking: Budget expenditures were frozen when the project began; no released time was available to conduct the survey, correlate the date, and write the results. Despite these, the administration was anxious to have the project completed before July in order to include an allocation for a reading program for the following fiscal year.

Procedures

Selecting a test

There are, of course, limitations inherent in any standardized reading test (2:27-28). Of particular concern was the question of cultural bias; a high percentage of our students are Chicano and likely to be affected by such bias. The decision to use a standardized test was predicated on four factors. First, the cultural bias inherent in standardized reading tests is also inherent in textbooks and in the system as a whole (3:164). Second, the results were to be used for statistical purposes and not to screen, stream, or label individual students. Third, a standardized test can be easily administered to a large group within a single class period and requires no specially trained personnel. Finally, standardized tests still enjoy widespread acceptance and far-reaching decisions are still made on such bases.

The Nelson-Denny was used because it was being used at Central Arizona College and sufficient copies were on hand. Thus, both the expense and the time involved in obtaining new tests were eliminated.

Sampling the students and administering the test

In September, 1976, the revised Nelson-Denny Reading Test, (Form A or Form B) was administered to 110 students, approximately 10% of the student body. The sample consisted of those students who were enrolled in one of four English Composition courses. Since a student must complete at least two of these courses to obtain a degree, these students were representative of both the terminal and transfer students in proportions closely approximating those of the entire student body. This sampling also eliminated the logistical problems involved in using a randomly sampled group.

Standard IBM answer sheets available from a local supplier allowed computer scoring. Instructions were rewritten to allow for minor differences in format. This also allowed the gathering of special information peculiar to the situation and possibly usable in a later study.

Scoring the test and correlating the data

The Data Processing Department created a computer program to score the tests, to convert raw scores to percentile rankings and grade equivalents, and to summarize that data. The program was adapted from the scoring instructions and the date contained in Table 5 and Table 10 of the *Nelson-Denny Examiner's Manual* (4:9, 15, 20). Had it been necessary to engage an outside agency, the cost would have been prohibitive. It took approximately 500 hours of programmer time to refine the program. However, many of those hours could have been eliminated if the data gathered for use in later studies had not been included. The portions of the program relevant to this project could probably be duplicated for one-fourth of the original cost.

Once established, such programs are inexpensive to run. Based on a time-sharing cost of $10 per hour and an operator cost of $3 per hour, the cost is approximately 37¢ per student, which breaks down as follows: computer time, 17¢; operator time, 5¢; IBM answer sheets, 8¢; other costs, 7¢.

Furthermore, the program can be used subsequently to screen new students, and the initial programming cost can thereby be amortized over several years, off-setting the cost of the original study.

Surveying the texts

Conducting a readability analysis of textbooks, regardless of the formula used, is tedious, time-consuming business. As no funds were available to hire and train clerks, some other method had to be found. One suggestion was to ask (require?) faculty members to analyze their materials. It was obvious that this would have been unwise. Most full-time instructors were teaching overloads and performing other extra duties. This added burden might have inflated their natural distrust of innovations which jeopardize the suitability of their materials into open hostility to the whole program.

Fortunately, a solution was suggested by Robert T. Williams of Larimer County Voc-Tech Center at the Ninth Annual WCRA Conference. He reported that General Motors has converted the Flesch Index and the Dale-Chall Index to a computer-programmed readability formula called STAR (Simple Test Approach for Readability) and has made that program available as a public service. A copy may be obtained by writing:

Public Relations Staff
General Motors Corporation
General Motors Building
3044 West Grand Boulevard
Detroit, Michigan 48202

The STAR booklet provides complete programming instructions in BASIC which can be programmed into the computer in about two hours. Then an operator need only log into the program and type the selected passages on the terminal. The computer calculates and prints out the number of sentences, number of words, number of syllables, average sen-

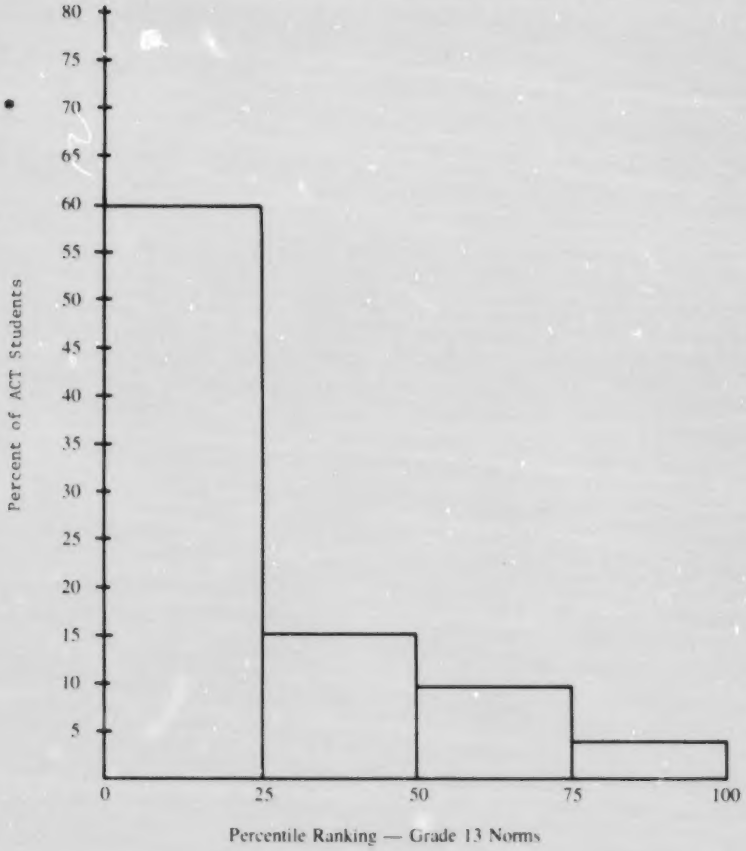
tence length, average syllables per word, the Flesch Index, the Dale-Chall Index, and the grade level equivalent. It will also provide a print-out of the sample text and/or all words of three syllables or more if requested.

Using an average of six samples per text, an analysis can be completed in about fifteen minutes at an approximate cost of $3.25 per text, based on $10 per hour computer time and $3 per hour paid operator time.

The project was assigned as "spare-time" work to two full-time clerks. This greatly reduced cost, but, coupled with the difficulty of getting computer time during business hours, it created one of the major stumbling blocks

Table 1

TOTAL VOCABULARY — COMPREHENSION



to completing the study. The problem was solved a few months later when a data processing instructor adopted the project as a class assignment. While the students got "hands-on" experience, the project obtained free labor and free computer time. Since the data processing classes were at night, the problem of getting "bumped" from the computer was eliminated.

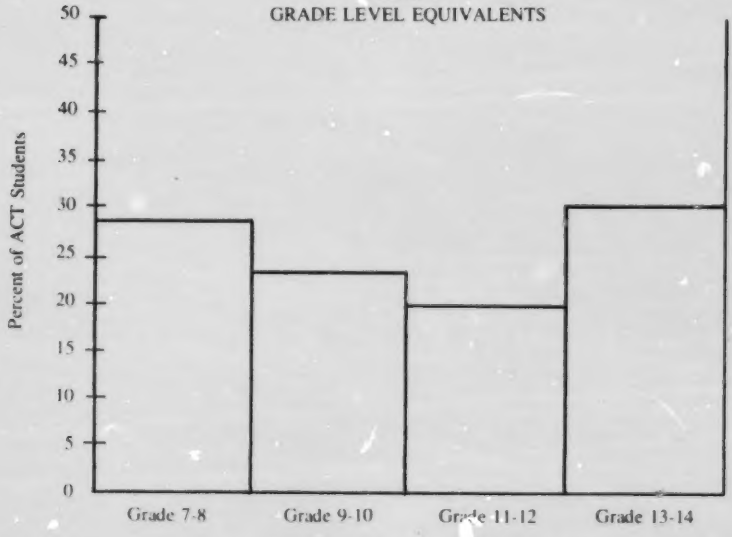
Findings and conclusions

Assessing the students' reading abilities

The first three questions posed by this study dealt with the existence and the extent of reading deficiencies and the degree these deficiencies were contributing to over-all academic deficiencies and attrition. The test results gave indication that a pervasive reading problem did exist. As Table 1 illustrates, 60% of the students tested scored at or below the 25th percentile of the established Grade 13 norms. Another 20% fell between the 25th and 50th percentile. Only one-fifth were at or above the 50th percentile. Only 5% were in the upper quartile.

Table 2, showing the grade equivalents, indicates that just 30% of the students tested read at college level (only 7% read above grade 14); 50% read at or below grade 10. That figure includes 12% who scored below 7th grade level. Note that grade equivalents represent "the median score made by students at the level indicated" (4:10), and that standardized reading tests have a high guess factor (3:164), and tend to overestimate reading ability (2:67).

Table 2
GRADE LEVEL EQUIVALENTS



Assessing the textbook surveys

Question 4 dealt with the reading demands made on these students. The college catalog had a readability of grade 21. Of the textbooks surveyed, the following array shows the data rounded to the nearest whole percent.

Percent of Texts	*Grade Equivalent*
26	15th or above
18	14th
13	13th
13	12th
13	11th
16	10th or below

Further, the grade equivalents represent the average of samples taken. The range, as illustrated in Table 3, was, perhaps, more revealing. Only two texts showed a range of less than five grade levels. The range in the others was broader. A text on criminal justice, for example, went from 9.1 to 23.2, and one in basic electricity from 7.6 to 18.8.

Assessing the gap

There is evidence to support the conclusion that a significant disparity exists between the reading ability of the majority of the students and the reading demands made on them. Of the textbooks surveyed, 84% were beyond the reading capabilities of 50% of the students surveyed; 57% beyond all but 30% of the students; 26% beyond all but 7% of the students. In addition, a significant portion of the textbooks surveyed contain passages that none of the students might reasonably be expected to comprehend. It is also reasonable to conclude that this situation would contribute significantly to failure and attrition rates.

Recommendations

An effective reading program at this college should include not only extensive, well-supported remedial and developmental programs for the reader, but also a program which encourages the finding or development and the use of "readable" materials.

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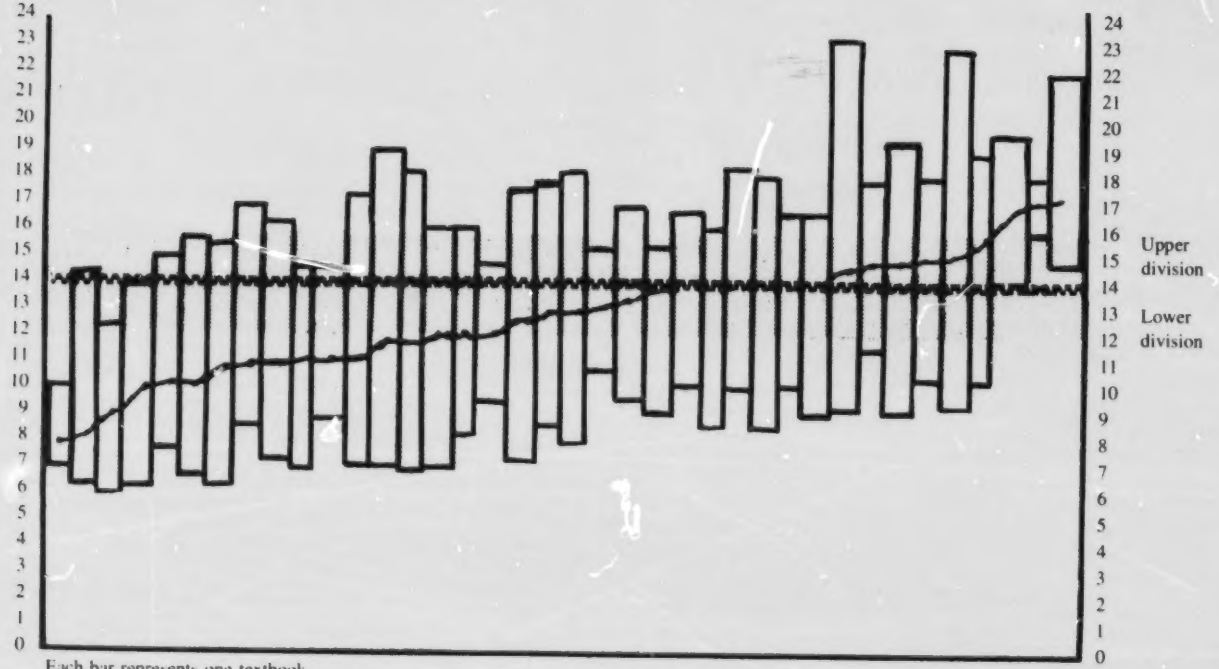
Table 3
READABILITY GRADE LEVEL EQUIVALENTS
RANGE AND AVERAGE



Each bar represents one textbook.

ABSTRACT

ATTITUDES OF COMMUNITY COLLEGE INSTRUCTORS TOWARD READING: A PROCESS FOR CHANGE

James A. Swindling*
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The purpose and procedures

The purpose of this study was to examine the attitudes of community college instructors toward the teaching of reading in the academic areas. Seventy-nine instructors from seven divisions participated in the study at Eastfield College. They were asked to respond to an attitude inventory consisting of fourteen items. An attempt was made to identify feelings in relation to the instructors: perception of their role in the teaching of reading in their academic area; their personal preparation and ability to teach reading skills; degree of enjoyment experienced while teaching reading skills; and view of the role of the reading specialist at the community college level.

Findings

1. There was no significant difference between groups in attitudes toward reading. 2. Eastfield Community College instructors did not feel a sense of responsibility toward the teaching of reading. 3. Instructors felt a lack of confidence in their ability and desired more training and material related to reading. 4. The actual task of teaching reading skills would not take the fun out of teaching. 5. The faculty did view the reading specialist as an important part of the instructional process.

Conclusions

There was positive evidence that a lack of confidence is at least in part responsible for the reluctance of instructors to teach reading in the academic areas. This indicated a feeling of inadequacy on their part rather than refusal to accept responsibility for the task. However, community college instructors were less tolerant than junior and senior high school teachers toward the under-achiever in reading and feel even less of a sense of responsibility toward reading.

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INNOVATIVE GRANT: READING AND THINKING SKILLS PROJECT

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The Undergraduate Program of the Institute for Reading at California State University, Fullerton is currently implementing a Reading and Thinking Skills Project made possible by an innovative grant awarded by the Chancellor's Office. This paper will trace the process by which the grant evolved and describe two of its major components.

The components of the grant are one program's answers to the specific needs of students on a particular campus. However, the process from which the goals and strategies emerged is a generalizable procedure that can be adapted easily by administrators who find themselves faced with the question: How can a reading program expand and diversify its options to provide more effectively for the personal, academic and curricular needs of its students? The search for an answer to this question was the impetus behind an intensive three semester process of program development initiated by the Institute for Reading in the Fall 1975. This four-part process consisted of research, visitations to other programs, program evaluation, and assessment of student performance and demographic characteristics.

Philosophy and goals

An intensive three-semester process of evaluation including research, visitations and student performance and demographic characteristics assessments, resulted in the articulation of a philosophy which emphasized the need 1) to develop the critical reading and thinking skills of students, 2) to serve the "whole person," both cognitive and affective, and 3) to provide more flexible and varied learning options to meet students' diverse needs.

From this philosophy grew four major goals which became the focus of the Reading and Thinking Skills Project awarded to CSUF's Institute for Reading. Although this paper will cover only goals one and two, all four goals are listed below:

I. To assist the undergraduate student to acquire reading and thinking skills that will enable him to understand, apply, analyze, synthesize, and evaluate knowledge for general problem solving and decision making

II. To serve the affective needs of students by assisting them to obtain knowledge and apply skills related to the following personal, academic, and extracurricular aspects of university life which may affect academic success:
   a. Self-evaluation and goal setting
   b. Self-management and organizational skills
   c. Personal and academic counseling
   d. Awareness of campus support services

III. To provide a variety of innovative time blocks and instructional techniques to make reading and study skill instruction accessible to students

IV. To provide students in the Graduate Reading Program, who are working toward their reading specialist credential, experience in the teaching of reading and study skills to the adult/college learner, while concurrently utilizing their expertise to provide the undergraduate program with sound and competent assistance in the teaching or reading and study skills in the courses and in the open reading lab.

Goal Two

READ 201 — Critical Reading Skills — is the core course for the grant incorporating Goals One and Two. The course is designed to help assist the needs of the "whole" student with his academic life through 1) development of positive and constructive attitudes toward the school environment, reading and learning, and himself as a student; 2) self-evaluation of strengths and limitations; 3) goal setting and strategy identification; 4) self-management of time and material; 5) knowledge and use of student support activities; 6) development of effective study skills techniques, and 7) improvement of reading and thinking skills.

A unique feature of the class is the use of the student portfolio which serves as both an evaluation tool for the instructor and the student and as a resource for academic/professional data and classwork. The format of the portfolio corresponds with the course goals and provides for immediate application of self-management techniques introduced in class. An important course goal — self-evaluation, goal setting and strategy identification — is reflected in the section of the portfolio entitled *Evaluation*. In this section, the student enters the results of tests and inventories — reading, study skills, and attitudinal — on the Individual Summary Evaluation form. On this form, the student, with the instructor's guidance, identifies 1) skills/attitudinal strengths and limitations, 2) short and long term goals, 3) specific strategies for goal implementation, and 4) target dates for comple-

tion. This enables the student to have a clearer direction and emphasis in relation to the course goals and provides for further direction in terms of outside class activities. At the end of the course, the student enters post assessment information in this portfolio section and reassesses strengths and limitations, goals and strategies, culminating in a final prose evaluation.

The last section of the portfolio — *Creative Use* — gives the student the opportunity to emphasize and expand activities and ideas presented in class to further meet individual, personal and academic needs. For example, students in the past have completed a weekly journal and compiled academic history data. The *Creative Use* section includes a special project component. The student pursues a special project in one of the following areas: career, counseling, rate and vocabulary, resume and resume follow-up, academic advisement, and academic organization.

The course has both product and process evaluation of components. Pre and post product assessment includes administration of the *Iowa Silent Reading Test* — Level 3, *Survey of Reading and Study Efficiency*, and the Academic Feelings Questionnaire from *The Four T's: Teacher, Talk, Text, and Test*, an unpublished syllabus by Sue Johnson. For process evaluation, students assessed the effectiveness of instructional methods and materials via a quantitative instrument. Finally, individual student comments were contained in the final prose evaluation. Based on the evaluation instruments, the course seems to have been successful in implementing Goals One and Two of the grant. Students showed increased awareness of their university environment and developed their general and textbook reading and thinking skills. In addition, they improved their study skills in the areas of listening and notetaking, textbook mastery, and exam taking.

Another integral part of the course and Goal One is to develop critical reading and thinking skills of students. In order to provide a framework for instruction in this area, a preliminary critical thinking model is being developed. The second phase of this paper will present a theoretical basis for the model.

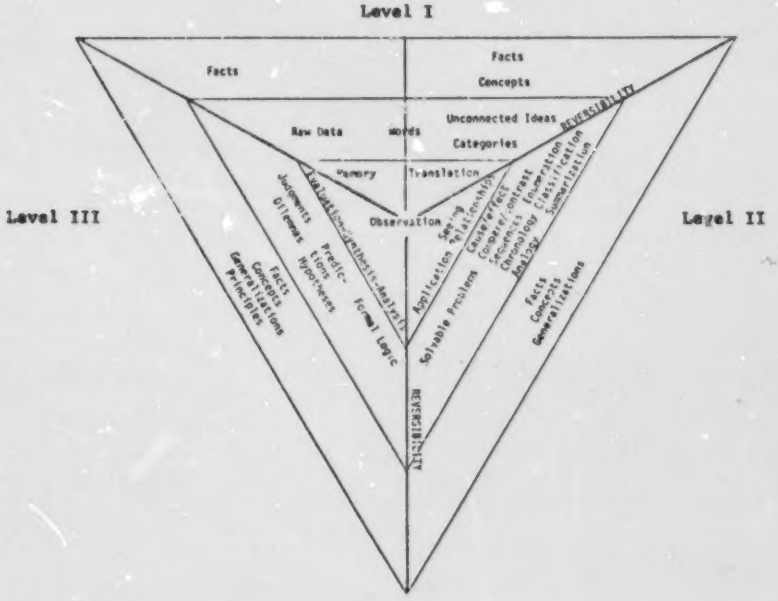
Critical thinking model

The critical thinking model is based on the research-supported hypothesis that higher level thinking abilities can be taught. An eclectic approach combining an existing theory (Piaget), a well-known taxonomy (Bloom), and an instructional technique designed to produce higher level thought (Taba), merits consideration for the college student. Reading comprehension, indeed all language-related process, merely tap one type of cognitive process, are one form of symbolic thought. Therefore, integration of rather than distinctions between reading comprehension and other psychological processes should be sought.

The purpose of the critical thinking model presented below is clearly to help facilitate instruction leading to higher level thought. The model repre-

sents a tripartite relationship among three levels of functioning. Each of the three segments of the model contains within it three simultaneously operating components:

(1) The structure of knowledge — what the teacher must perceive
(2) The symbolic representation of process — the products of thought
(3) The structure of process — what the mind appears to do.



Each component will be considered separately; however, the model can best be understood if read in clockwise fashion from the outer to inner rings, segment by segment.

The structure of knowledge

In Taba's view (4, 5), the structure of knowledge is a hierarchical scheme consisting of four levels: facts, concepts, generalizations and principles. All knowledge can be reduced to these components. Most material will contain at least facts, concepts and generalizations, but all material need not contain recognizable principles. Instructors in the critical reading course for the grant will select articles lending themselves to this type of analysis for instructional purposes.

In order to engineer appropriate learning opportunities, the instructor will first identify the generalizations and principles he wishes students to

perceive and then make certain that questions leading to the facts and concepts upon which these generalizations and principles rest are introduced. Specific strategies used to attain these goals require planning instruction from principles to facts or from the top of the hierarchy down, while teaching from facts to principles, or from the bottom up.

The symbolic representation of process

To communicate effectively, ideas, the products of thoughts, must be organized in some fashion. Teaching and learning require awareness of this organization. Factual and conceptual data can easily be expressed in unconnected specifics such as words, sentences, or charts without use of any particular pattern of presentation.

Generalizations, on the other hand, require the expression of relationships among concepts, usually qualified by specific conditions. These relationships can be organized in a number of different patterns such as cause-effect, compare-contrast, chronological order, analogy and so on. The solution of solvable problems requires reliance on one of these organizational patterns as well.

Principles represent the highest order of generalization, that is abstract ideas supported by concepts and generalizations tested over a period of time. Representation of ideas central to these abstractions is presented in the form of hypothesis, predictions, dilemmas and judgements. Sometimes thoughts are expressed with a total awareness of the patterns chosen and the appropriateness (logical and illogical use) of these patterns to a given situation.

Symbolic representation refers to both the receptive and expressive aspects of communication — both how an author organizes his thoughts as well as how the reader receives and responds to them. In the Critical Reading course, students will be given assistance in perceiving various organizational patterns as well as in generating these patterns in their verbal and written responses in and out of class.

The structure of process

The structure of process is a three level hierarchical system based on Sander's (3) interpretation of Bloom's taxonomy (1). Observation or awareness of stimuli is seen as essential to the exercising of any of the processes surrounding it. Each process relates specifically to certain elements within the structure of knowledge and response to questions or problems posed in the instructional setting.

It is hypothesized that the underlying dynamic necessary to transitions from level to level within the model is related to the Piagetian concept of reversibility (2). Reversibility implies the ability to go back to the original point of some event. It implies the ability to perceive wholes and parts and to focus on more than one aspect of a situation at a time. In terms of the

model presented here, it signals the ability to deal with relationships or Level II thought processes. Movement into the highest levels of thought, however, demands a more advanced form of reversibility enabling the individual to turn over in his mind numerous facets of events without concrete reference to them.

Our faculty is currently experimenting with materials and instructional strategies to integrate the model into classroom structure and to assist students in adapting it to academic content areas.

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COLLEGE READING CENTER APPROACH TO IMPROVEMENT OF READING WITH STATE EMPLOYEES

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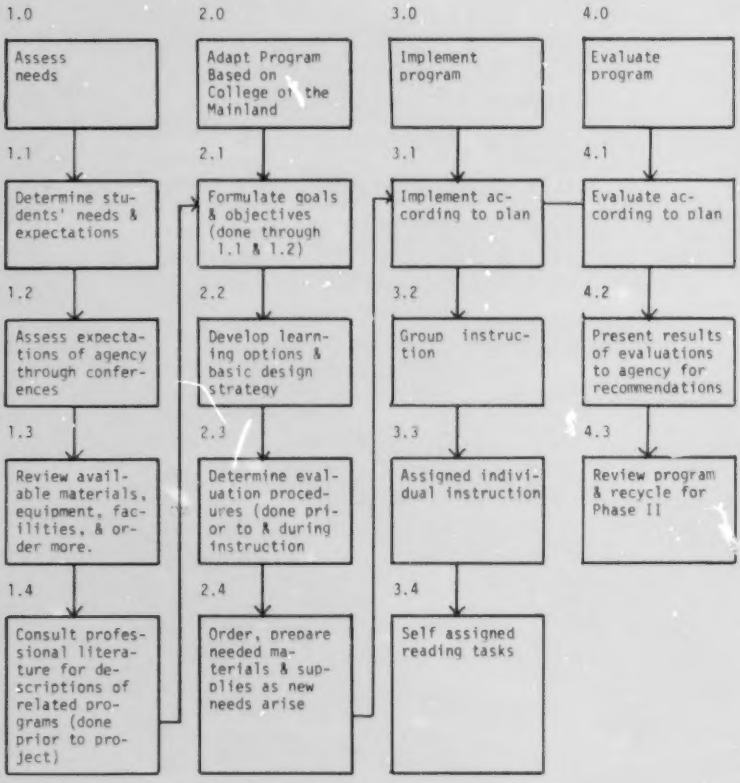
The major purpose of this paper is to report the adaptation of a college level reading center program to the perceived and assessed needs of a group of state employees.

A secondary purpose of the paper is to offer evidence that college reading programs have a great potential for improving the reading skills of state employees by transporting the reading laboratory from the college environment closer to the work environment.

The program at Texas A & M University started with an inquiry by state officials regarding their desire to increase the staff's reading abilities to cope more efficiently with the voluminous reading materials that they encountered in daily operations. An informal needs assessment discussion with agency representatives revealed that the major areas identified for improvement were rate, flexibility, and comprehension. Further conferences revealed that the state officials would cooperatively sponsor a reading program if it were based on specific behavioral objectives. This was easily accomplished by incorporating Livingston's (1972) behavioral objectives into a planned program. Livingston's objectives stressed understanding the reading process, developing comprehension rate and flexibility skills. In retrospect, we note that the program we delivered to state employees also resembles Osen's (1972) WCRA systems approach model to establish accountability in college reading programs. Therefore, the reader can gain a quick review by examining Figure I, "An Adaptation of Osen's Model to a Governmental Agency Reading Program." The various phases of needs assessment, program planning, program implementation, and program evaluation were representative of our program which in turn was based on the program in use at College of the Mainland.

Figure 1
AN ADAPTATION OF OSEN'S MODEL TO A
GOVERNMENTAL AGENCY READING PROGRAM



Program procedures and materials

After the needs of the agency were determined, the following procedures were planned and subsequently put into operation.

Diagnosis

The instructor surveyed the reading interests, background, and habits of the participants. The McGraw-Hill Basic Skills Systems Reading Test, Form A, and the Nelson-Denny Reading Test, Form C, were administered to obtain rate, flexibility, comprehension, and vocabulary information. The

findings were filed in student diagnostic folders and the data was promptly used in conferences. The findings were also incorporated into formulating individual course objectives and provided information for planning group instruction.

Individual objectives

During the second class session, students were asked to read through a list of 38 behavioral objectives covering perception skills, word-attack skills, vocabulary skills, comprehension skills, critical reading skills, and study skills. The instructor included beneath each objective a list of materials that the participants could use to master the objective. During an individual conference each student was asked to select the objectives he felt he wanted to work toward. The instructor also gave suggestions based on diagnostic information.

Course objectives

Behaviorally stated objectives were written for each session and were given to each student in mimeograph form at the beginning of each class meeting to specify session activities and outcomes.

Record keeping

Students were asked to write all answers to comprehension questions on answer sheets provided for the student. Rate and comprehension scores were obtained on all timed readings. Students were also asked to maintain a record of all reading completed outside of class, a record of new vocabulary words, and a record of all attempts at completing objectives. This data was filed in the student's work folder.

Class format

Each class meeting was composed of three time periods. The first hour usually included presentation over the skill outlined for the day, and, if the skill required practice, the class would use part of the hour to apply the skill. For the second hour, the class participated in timed readings from the two texts that were used for the course. Emphasis was placed on rate and comprehension skills. The participants also were able to choose the selections they wanted to read for timings. They timed themselves with stop watches. The last 45 minutes included individual conferences. An attempt was made to discuss the day's progress with each student, while the other students continued timed readings, worked on individual objectives, or worked on visual perception exercises.

Class presentations

Group instruction over specific topics were presented through an informal lecture. The instructor began each class meeting with an informal conversation with the class to establish a class environment conducive to class participation. Transparencies and tape recorders were used when

appropriate. Students were encouraged to participate in discussions throughout the presentation. When the presentation called for application of the skill, the class practiced the skill. Such skills were note taking, previewing, listening, skimming and scanning, and identifying key words, phrases and topic sentences.

Materials

The availability of materials was quickly determined during the needs assessment and new materials were promptly ordered. The following materials were transported to the class every day and unpacked and repacked for the next session:

Texts — two textbooks were selected for the course — James Brown's *Efficient Reading* and Alton Raygor's *Reading at Efficient Rates*. Both are designed to provide practice in timed readings and comprehension checks. The Brown text was chosen because of its wide range of articles, and the Raygor text was chosen because many of its timed readings addressed themselves to techniques of improving reading ability and tended to reinforce the lectures. Students were encouraged to read the texts at home when their schedules permitted outside reading.

Several supplementary texts were used to enable participants to better achieve their individual objectives. Students had access to five vocabulary texts, five study skill texts, 38 comprehension texts, and 20 rate texts, and were encouraged to practice at home.

One EDL controlled reader machine and ten SRA pacing machines were available for use for practicing speed, and ten stop watches were available for timed readings in class and at home.

A selection of 75 paperbacks was available for use by the participants. Newspapers, journal articles, and job-related materials were used for specific sessions in practicing skills, and students were encouraged to bring any materials they wished or needed to read.

Implementation of the program

The preceding section described the plan made and adhered to during implementation. The original plan called for 11 sessions over a 11 week period. Agency needs dictated that the course be compressed into five and one half sessions which meant two sessions per week. The following sequence of topics represent the overall course organization and implementation:

Session I — Pre-Test and Overview of the Course
Session II — Description of the Reading Process
Session III — Perceiving the Writer's Structure
Session IV — How Can You Remember What You Read?
SQ3R Notetaking and Listening Skills
Session V — Skimming & Scanning

Session VI —	Vocabulary Improvements
Session VII & VIII —	Critical Reading Skillls
Session IX —	Adapting Reading Purpose to Different Reading Materials: Job-Related Readings — Newspapers and Journals
Session X —	Posttesting
Session XI —	Application of Acquired Reading Skills to Fiction and Non-Fiction Books and Where Do We Go From Here?

Evaluation

Evaluation was determined by the following objectives in which participants would improve:

1. Rate of reading as measured by the McGraw-Hill Basic Skills System Reading Test and the Nelson-Denny Reading Test.
2. Flexibility or rate as measured by the McGraw-Hill Basic Skills System Reading Test and timed readings in *Efficient Reading*.
3. Comprehension scores as measured by the McGraw-Hill Basic Skills Reading Test and the Nelson-Denny Reading Test.
4. Vocabulary scores as measured by the Nelson-Denny Reading Test.
5. Further, participants would enjoy the course and evaluate it as being helpful.
6. Achieve individual objectives they had set for themselves during the second class session.

A Comparison of McGraw-Hill and Nelson-Denny Pre and Posttests (Table 1) reveals that the differences between mean scores were statistically significant in seven of the 11 comparisons. Rate of reading and flexibility gains were impressive. From a utilitarian job-related standpoint, these gains should help employees to read faster and read more at the same level of comprehension they had when they entered the course. The comparison of comprehension revealed a mean difference of five points on the Nelson-Denny test which was significant at the .10 level but not at the .05 level. The importance of this finding is that comprehension did not diminish and adds practical significance to the rate of reading and flexibility gains.

We speculate that if the course could have been conducted in 11 weeks as originally planned, more emphasis, time, and practice would have influenced comprehension gains more favorably. It is interesting to note that vocabulary gains were also impressive and should contribute to future improvement of comprehension. External reading flexibility also improved noteably. This is another skill that has great work applicability in finding significant passages for closer contemplative reading. The above gains were based on 76 percent class attendance.

Both formative and summative evaluations during the course revealed that the students perceived the topics as relevant and interesting. Com-

Table 1
A COMPARISON OF MCGRAW-HILL AND NELSON-DENNY PRE AND POSTTESTS

	Pre			Post		
	N	Mean	S.D.	Mean	S.D.	t	p
McGraw-Hill:							
Rate I	16	239.94	67.56	364.0	112.25	8.187	.001
Rate II	15	188.27	38.61	260.73	101.36	2.806	.05
Flexibility	15	45.27	25.53	99.00	70.96	3.091	.01
Retention	16	12.31	4.33	12.19	2.99	.870	N.S.
Skimming & Scanning	16	16.94	4.36	19.88	5.37	3.264	.01
Comprehension	16	23.06	3.84	22.38	3.50	-.144	N.S.
Total	16	52.94	11.92	55.06	10.36	1.299	N.S.
Nelson Denny:							
Vocabulary	18	44.96	20.95	52.78	24.62	2.638	.05
Comprehension	18	32.22	14.60	37.22	11.42	2.819	.1
Rate	18	307.33	116.56	388.83	146.95	3.056	.01
Total	18	74.78	34.80	87.94	31.52	2.897	.01

The following scores were found to be statistically significant: Rate I, Rate II, Flexibility, Skimming & Scanning, Vocabulary, Rate, and Total Reading.

ments were also of a very positive nature concerning the course objectives and the class format.

In retrospect, the instructor felt that the gains exceeded similar programs at the college level. The following recommendations were made for Phase II, the next group of this program:

1. Provide more practice time for students in class.
2. Organize lectures better so that they can be condensed without leaving out content; thus, more time would be available for application of theory.
3. Provide more time and attention to individual needs of students.
4. Create and use more job-related materials with students.
5. In providing services for future courses, it would be better to schedule courses once a week rather than twice a week. The extra time between sessions would give students an opportunity to practice mastering skills introduced in class.

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THE HISTORY, DEVELOPMENT AND APPLICATION OF THE AUDIO-TUTORIAL DELIVERY SYSTEM TO MATHEMATICS, SCIENCE AND ENGINEERING

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The concept of modularized instruction, by means of aduio-tutorial delivery system, was sponsored by Dr. Samuel N. Postlethwait at Purdue University in 1961. "Dr. Sam" indicates that the program is more than a delivery system in that the presentations are "multifaceted and appeal to all senses of the learner" (4:3).

The audio-tutorial system was born out of Postlethwait's recognition that students come from varied backgrounds and abilities, but given enough time almost any student admitted to a program can succeed (2). The traditional two lectures and two laboratories per week, in a college biology class, did not suffice for many students.

Postlethwait tape recorded lecture materials in an effort to allow students to review academic materials but quickly found that the recorded word, by itself, was a poor communication tool (2). He appealed to all of the student's senses by adding prepared textbook materials in the form of a study guide, visuals, plants, animals, laboratory supplies and equipment while tape recording an instructional package as if a student were in the recording room with him. Behavioral objectives are prepared for each minicourse which the student must master, therefore placing the responsibility of learning on the student. Thus, the program becomes a conversation with the student, *not* a lecture, dealing with a single concept or unit of subject matter (1). This method of learning has the advantage of students being able to pace themselves according to their abilities. Students have continual access to competent tutors to assist them during independent study sessions. This program frees the principle instructor from routine tasks and allows for more purposeful student-faculty contacts on a one-to-one basis (4).

The audio-tutorial delivery system has undergone numerous changes

since 1961. Postlethwait stood alone for the first five years. Then, during the mid 60's, a handful of biology professors joined him in developing Learning Centers to deliver the audio-tutorial system. In the early 1970's, numerous disciplines of Postlewait Minicourse Workshops have spread the use of the audio-tutorial method throughout the nation in many academic disciplines, each with their unique application to suit the needs of their own institution.

Learning center pilot program

Development and Preparations

Dr. Kenneth McWilliams met with Dr. Samuel Postlethwait in Fall 1971 to discuss developing a Learning Center to initiate the audio-tutorial delivery system in biology at California State University, Fullerton. A decision to develop a pilot program was initiated with five objectives:

1. To plan and install a 16 student booth Learning Center
2. To develop and prepare instructional materials for major's and non-major's in the audio-tutorial format
3. To establish baseline data regarding student achievement using audio-tutorial materials
4. To establish baseline data regarding student attitudes and behavior using audio-tutorial materials
5. To convince faculty and administration of cost effectiveness and instructional efficiency using Audio-Tutorial materials

A 16 student booth station, 1100 square feet Biology Learning Center was designed and implemented in the Spring and Summer of 1972. Modest funds of $6,000 from the Dean of the School of Letters, Arts, and Science and a $27,000 California State College and University, Chancellor's Office Grant for Innovative Instruction enabled the experimental program to begin.

Selections from commercially available audio-tutorial instructional packages in zoology, developed by the Burgess Publishing Company (3), were modified to suit a major's biology course titled Principles of Zoology. Minicourses developed at the Minicourse Development Project, Purdue University, in addition to instructional packages developed on the CSUF campus, were used as a part of the requirements in a non-major's biology course titled Crisis Biology. These courses serve as the basis of the pilot studies reported here.

Principles of Zoology

In the Fall of 1972, 130 students were signed into two sections of Principles of Zoology to be taught by traditional and audio-tutorial delivery systems. Students were assigned at random into the class and had no prior knowledge of the pilot program. The two professors teaching the class administered a pre-test which was designed by the biology department to measure student background knowledge in basic biological principles. The

results of the exam seen in Table 1 show that the 88 traditional students scored slightly higher with a mean score of 39.2; whereas the 42 audio-tutorial students scored a mean of 38.5. The difference between the two mean scores of 0.7 points is not significant ($P \leq .01$). An achievement test based on objectives prepared by the instructors involved was prepared by an outside evaluator. The results of this post test, seen in Table 1, show that the mean score of audio-tutorial students, 66.9, was significantly higher ($P \leq .01$) than the mean score, 54.6, of those students taking the course in a traditional fashion. These results are conclusive that the audio-tutorial students achieve a higher level of mastery than traditional students. The audio-tutorial students spent an average of 0.6 hours more per week on "in class" activities than did traditional students.

Table 1
COMPARISON OF STUDENT ACHIEVEMENT BETWEEN TRADITIONAL AND AUDIO-TUTORIAL DELIVERY SYSTEMS IN A MAJOR'S BIOLOGY COURSE

Evaluative Instrument	Traditional			Audio-Tutorial			Statistic	
	N	$\bar{x}$	S.D.	N	$\bar{x}$	S.D.	T	Significance
Pre-Test (50 items)	88	39.2	3.78	42	38.5	3.91	1.04	Not significant
Post-Test (100 items)	78	54.6	10.96	39	66.9	7.70	5.58	$P \leq .01$

Crisis Biology

In the Fall of 1972, 161 students were assigned to a section of Crisis Biology which was offered credit/no credit. Students were given a choice of four options, from which they were to select three in order to receive course credit. The options were:

Lecture — traditional 50 minute lectures, two per week, and assigned readings from which three objective exams were administered; scores of 60% or higher were considered passing.

Minicourses — completion of at least eight audio-tutorial minicourses; scores of 70% mastery were considered passing.

Discussion — attendance and participation in small groups, eight to ten students, on assigned topics.

Projects — independent research projects or papers personally contracted between the student and faculty member.

Upon completion of the class, an extensive questionnaire was administered to the 148 remaining students. Over 73% of the students were very satisfied with the Crisis Biology class and only 14% were dissatisfied with

the class. More than 75% were interested in having more courses taught in a similar manner, and less than 9% of the students thought the instruction was ineffective. A high degree of student satisfaction is expressed in the fact that almost 93% felt they were able to assume responsibility for their own achievement in the class.

Specific data in Table 2 compare student evaluations of the four learning options in the course. Indications of student preferences toward minicourses are exhibited by the fact that 147 of 148 students chose that option followed closely by 139 choosing the lecture option. In contrast, the less structured discussion and project options had fewer students choosing them, 93 and 65 respectively. Of those choosing the minicourse option, 78.2% felt they were important or very important components in mastering content in the course; this was followed by lectures with 73.9% indicating a slightly lesser importance. There were few students, 21.8%, who were either neutral or felt that minicourses were unimportant in learning course content. The data indicate that minicourses are the most helpful learning option in mastering course objectives followed by lectures, discussions and projects.

Table 2
COMPARISON OF STUDENT EVALUATIONS OF FOUR DELIVERY OPTIONS ASSISTING MASTERY OF CONTENT IN A NON-MAJOR'S BIOLOGY COURSE

		Significance				
Number of Students Choosing Option	Option	Very Important	Important	Neutral	Unimportant	Very Unimportant
139	Lecture	30.2	43.9	20.9	3.6	1.4
147	Minicourse	41.5	36.7	15.7	3.4	2.7
93	Discussion	22.5	36.6	23.7	11.8	5.4
65	Project	12.3	26.1	43.1	12.3	6.2
444						

*Data Expressed as % of Total Student Responses.

Table 3 is a summary ranking of the four learning options. Again, the most significant statistic is the fact that over half of the students responding, 52.7%, felt that the minicourse option was the best. Lectures were a distant second, with 30.4% students choosing them first. The discussion and project components were again given a significant lesser ranking. Less than 16% of the students choosing minicourses felt they were the "worst" option they used in learning course content. Data in Table 2 and Table 3 indicate students prefer minicourse to all other options in learning subject matter in their non-major's biology class.

Table 3
COMPARISON OF STUDENT ATTITUDES RANKING THREE DELIVERY OPTIONS CHOSEN TO LEARN CONTENT IN A NON-MAJOR'S BIOLOGY COURSE*

Number of Students Choosing Option	Option	Rank 1	Rank 2	Rank 3
139	Lecture	30.4	40.5	23.0
147	Minicourse	52.7	31.1	15.5
93	Discussion	12.2	15.6	35.1
65	Project	4.7	12.8	26.4

*Data Expressed as % of Total Student Responses.

Learning center development

Rational for school-wide learning center

During the first year of the experimental program, the studies from student achievement and attitude were the basis of influencing faculty and administrators to increase support and usage of the Learning Center. Cost effectiveness figures for the first year were $0.29 per student-hour for maintaining the Learning Center and developing instructional programs. This information coupled with University reorganization led to the creation of a school-wide Learning Center of the School of Mathematics, Science and Engineering. Due to success of the pilot study in biology, other departments within the school requested similar instructional support for their programs. The interdisciplinary nature of the programs and the common use of scientific equipment led to the logical development of a common Learning Center for the School. The Learning Center was expanded from 1,100 square feet to 2,300 square feet.

Learning center usage

Learning Center usage during the past four and one-half years totals over 870,000 student hours. Table 4 summarizes the usage of the Learning Center beginning with the first year, which serviced 882 students in biology courses.

In the second year of operation, six departments servicing eleven courses used the Learning Center as some part of their instruction which nearly doubled the student hour usage. The third year, 1974-75, was the most successful based on a usage of 32,380 student hours in some 36 courses and eight academic departments. Significant increase was due to an impac-

Table 4
SUMMARY OF THE DEVELOPMENT AND USAGE OF THE LEARNING CENTER OF MATHEMATICS, SCIENCE AND ENGINEERING AT CALIFORNIA STATE UNIVERSITY, FULLERTON

Year	Student Booth Capacity	Hours Open/Week Students' Hours Capacity/Week	Student Serviced	Student Hours Used	Student Hours Week Used	% Used	Courses Served
1972-73	16	55/880	882	7325	261.6	29.7	9
1973-74	24	58/1392	1262	12212	436.1	31.3	11
1974-75	32	62/1984	3754	32380	1156.4	58.3	36
1975-76	32	62/1984	2526	21480	767.1	38.7	43
1976-77*	36	62/2232	1437	13680	977.1	43.8	19

*Fall Semester 1976 Data Only.

tion on the Learning Center of a pre-calculus mathematics class. Due to inadequate small group tutor and testing space, the Mathematics Department dropped this Learning Center course in 1975-76.

During 1975-76, 21,480 student hours were logged servicing 2,526 students in 43 courses. The 1976-77 data represent the first semester activity in the Learning Center with an increased student booth capacity to 36.

Learning center activities

The basic philosophy of the Learning Center has been to serve the student by encouraging faculty to create learning materials for use in the Learning Center. Though the Audio-Tutorial delivery system prevails, numerous other uses have been adopted including experimental programs in Personalized Self Instruction and Computer Assisted Instruction. The other most commonly used learning activities are:

Programmed Reading — faculty assign specific readings from journals or alternate textbooks.

Audio-Taped Lectures — faculty tape their lectures for student review.

Audio-Taped Seminars or Symposia — faculty tape conventions, conferences and symposia which are in turn shared with students for specific classes.

Demonstration Laboratory — faculty place demonstration materials in the Learning Center which are too bulky to show in large classrooms.

Audio-Slide Presentation — faculty prepared or commercially available materials.

Videotape Presentations — faculty assign programs from a library of videotapes to be viewed in the Learning Center.

Calculator Use — faculty have placed a programmable calculator in the

Learning Center to accommodate students in statistic courses and special projects.

The activity ranges a spectrum from supplementary learning materials to self contained courses. Though most learning centers dealing with subject matter are designed to accomodate a single course or two at the most, the Learning Center of Mathematics, Science and Engineering at California State University, Fullerton, serves the needs of many and varied courses.

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A JUNIOR COLLEGE PROGRAM OF STUDY FOR INTERNATIONAL STUDENTS WHO HAVE NOT STUDIED ENGLISH AS A SECOND LANGUAGE

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More and more international students are entering the United States to study in colleges and universities. Institutions of higher education have, before accepting the non-native student, required certain scores on the TOEFL or a designated level of achievement certified by an ESL school. Like the American standardized tests and high school transcripts of native students, the TOEFL and ESL levels of achievement have not given an accurate picture of the college preparation of the foreign student.

International students who had attended ESL schools were not entering Northeastern Oklahoma A & M Junior College prepared to compete with the American student. ESL students admitted through a level six rating from one school did not have the same skills as students with a level six from a different ESL school. "Level six" as a measure of learning was not a true predictor of student abilities. A brief glance at ESL history shows that a good many roads have not guaranteed a native-like proficiency in standard English (3).

The intent of this article is to describe the program established at Northeastern Oklahoma A & M Junior College to teach English as a second language to non-native students.

Identification of students — special problems

The majority of foreign students at Northeastern A & M Junior College are from Iran, Hong Kong, and Venezuela. They are primarily engineering majors.

Instructors are faced with the awesome job of teaching English, reading, and speech classes to adult students of varied countries, customs, and abilities. Non-native students are not naturally motivated to study subjects outside their major field. The parallel between reading and speaking English successfully and studying engineering and related courses totally escapes the mind of the foreign student.

These students must be guided to the realization that the English language has to be mastered before any part of the college curriculum, even mathematics, can be studied. This is an emotional as well as an academic hurdle. The total capitulation by the student to learn English is tantamount to admitting to the superiority of the United States over their native countries.

When observing the period of adjustment necessary for the American student to understand the academic rituals of college, one sees a vivid demonstration showing that the problems facing foreign students encountering the same academic atmosphere are compounded (9).

Role of the instructor

The instructor of foreign students must have the ability and patience to see them as adults with psychological, social and intellectual patterns of behavior acceptable in their respective countries, but not acceptable in American colleges. These differing life-styles are not to be dictatorially reversed. They may be used as foundations upon which new behavior patterns can be established.

The instructor assigned to the special block of classes for international students must

1. have an understanding of the varied cultures of the students;
2. understand the different religions of the students;
3. have empathy for the psychological and emotional problems of the students;
4. have the ability to be creative enough to teach to adults skills usually taught to young children;
5. have the ability to individualize the use of the materials, tapes, and hardware available in the reading laboratory.

Objectives of the block of studies

The general objectives of the program are the following:

1. to assist the student in making the adjustments necessary for American college life;
2. to assist the student in becoming proficient in the use of the English language;
3. to assist the student in acquiring communication skills in reading, writing, and speaking in English;
4. to assist the student in making the transfer of the acquired skills to other academic disciplines.

Description of the program

International students entering Northeastern A & M under the "special" program are first given a series of diagnostic tests. A program of testing and screening has been developed for the non-English speaking

student. The tests are administed before the students are enrolled in any course of study. Some of the tests are written in English but especially designed for foreign students.

The diagnostic tests administered at N.E.O. are the following:

1. an English test (King & Campbell, 1956);
2. a teacher-made vocabulary test;
3. a basic studies inventory (Hodges, 1973);
4. an algebra survey test (Breslich, 1931);
5. a written paragraph; and
6. a study skills survey (Brown-Holtzman, 1956).

The results of the tests reveal a wide range of abilities among the foreign students. This wide range in background necessitates a program of individualized instruction.

The scores attained on the tests are the basis for enrolling the international student. The student follows either a regular course of freshmen studies or a block of special compensatory courses.

The pre-test scores also give direction to the levels of materials used. The relevance and maturity of material is as necessary as is the level.

Description of the compensatory program

The ten hour block of compensatory classes required as a result of test scores consists of English 1015, Developmental Reading 1112, Speech 1113, a mathematics course, and one hour of physical education. All courses count toward an associate arts degree.

The first weeks of the program are devoted to orientation to the college society and to the basic American rituals and colloquial customs. This period of orientation doubles as a language arts lesson. Both the students and the instructor may pose questions and answers which give information for every day living and practice in speaking English.

Fundamental skills must be taught and not taken for granted by the instructor. The majority of students have never used lined paper and do not read or write from left to right. The students must first "unlearn" their natural direction for reading and writing. Students of Asian origin must learn an entirely new alphabet. The learning process for these skills need not be labored drill-type exercises but can be taught through language experience lessons during the orientation period.

The students bring with them years of experiences which are relevant to teaching English. This wealth of knowledge must be translated from Persian, Japanese, or Spanish into English.

Adult, timely subjects can be used when teaching students to write or speak. The content of such exercises produced by these students is usually far above the expectations of instructors. The structure of sentences and paragraphs and word usage require the careful attention of the instructor.

The classroom situation is only a part of the foreign student program. A

laboratory setting is established in the learning center for independent study, guided and supervised by the instructor. A variety of tapes, listening lessons, vocabulary controlled paperback books, study skills re-enforcement cassettes, and library orientation materials are used for a minimum of two hours each week.

The use of these audio-media must not become divorced from the teacher-oriented-individualized program which is necessary for these students. Every student is not required to plod through each taped program; the audio-lingual materials should suit the needs of the individual student.

Students diagnosed as needing Developmental Reading are required to listen to and take written tests on Reading and Conversation, Volumes I and II. The Reading and Conversation tapes deal with subject matter acquainting the student with United States history, geography, and holidays. Learning to follow directions, testing formats such as multiple choice, true and false, and completion questions, and correct enunciation of vocabulary in context are also taught. The student builds vocabulary and concepts through the use of the tapes.

Five programs of vocabulary study are available to use with the *Language Master*. Everyday expressions, primary level, intermediate levels one and two, and advanced level of isolated vocabulary words may be assigned to the student. The advanced level also gives dictionary definition and diacritical marking for the advanced student.

The administration and faculty responsible for the international student program have accepted an ethical responsibility to provide a course of study to prepare the student for success in college.

Any course of study cannot become fixed but must always be flexible, ready to change. As the ten hour block of studies is being taught and the semester progresses, changes are necessarily made to suit any individual differences ascertained through classroom observation.

Summary

A summary of the goals of the suggestions that have been set forth are the following:

1. to follow the concept of the "open door" policy of the junior college to extend to the admission of foreign students;
2. to motivate the students to accept the absolute that English must be mastered to be successful in the American college;
3. to assign instructors who are properly prepared emotionally and academically to teach foreign students;
4. to test the foreign student and plan a program of compensatory or regular study based on the test results;
5. to present the compensatory program on an adult relevant level of interest; and
6. to deal fairly and ethically with the student to the extent of refusing to accept students who will not enroll according to testing results.

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RESTRUCTURING A READING PROGRAM

Rose Wassman
De Anza College

Almost two years ago at DeAnza College which is located forty miles from San Francisco, the Language Arts Division expressed a felt need to reorganize its reading program. I was granted two quarters' full reassigned time from teaching responsibilities to undertake that task and will describe the procedure I followed.

Former reading program

Until 1975, one major course in reading was available and was open to any student who wished to enroll. Entitled "Basic Reading Improvement," it met three times a week, primarily in a laboratory setting, was offered on a credit/no credit basis and was a non-transferable elective. Placement in the English transfer curriculum program was based solely on *ACT* or *SAT* scores. The *Davis Reading Test* was used as the pre/post test instrument to determine a student's reading ability in that basic program. Although it is an achievement test, it had been analyzed and programmed into a computer and became the basis for lab assignments. Forty test questions from Part One of the test were used to classify eight skills areas: Antecedents and References, Structure, Central Idea, Explicit Answer, Author's Purpose and Point of View, Inference, Author's Tone, Mood and Style, Figurative Language, and Problem Solving. The basic course was not originally designed for students whose reading ability ranged from the non-reader to the one at the 99th percentile but was geared for the middle range student who was typical of the DeAnza student during DeAnza's formative years. However, students enrolling in the class read from 0-99th percentile. Additionally, members of the English Department were dissatisfied with the increasing numbers of students enrolling in the Freshman Composition transfer course who lacked basic reading and writing skills. Therefore, I was requested to develop a plan to restructure the reading program.

Initial steps

I began the task of developing a plan by perusing 97 California college catalogs to become cognizant of the scope of reading and study skills programs. Then, twenty-five colleges, both in Northern and Southern California, were selected for on-site visitations. The selection was based primarily on the idea of visiting schools and programs whose diversity might help crystallize a new DeAnza program. A month's time was required to visit one-fourth the community colleges in California.

Establishment of literacy requirements

Both the Language Arts Division and the Curriculum Committee agreed DeAnza should require students who wished to enroll in an English transfer course to take the *Davis Reading Test* if the student's records upon entering DeAnza did not indicate 20 or higher on ACT or 430 or above on SAT verbal. From eight years of having used the Davis test as the pre-test to the basic course we used to offer, we knew that most students who scored around the 35th percentile, or approximately the 11th grade reading level, would possess the critical reading skills English transfer courses demand. The following structure evolved.

A diagnostic-prescriptive-evaluative reading course

After literacy requirements were established, I studied all test data available to begin to create English 91, Developmental Reading. The test which seemed most nearly to evaluate the kinds of skills we feel developmental students need is the *Stanford Diagnostic Reading Test, Level IIIA* which is, in effect, an analytical test with diagnostic sub-tests. I made an item analysis of Part One which contains 60 test questions for literal and inferential comprehension and divided it into five categories; another five categories were derived from the remainder of the test. Hence, ten broad skills' areas were formulated: (1) Explicit Answer, (2) Main Idea, (3) Author's Tone and Purpose, (4) Inference, (5) Words in Context, (6) Word Meanings, (7) Word Parts, (8) Phonics, (9) Study Skills, and (10) Memory and Concentration.

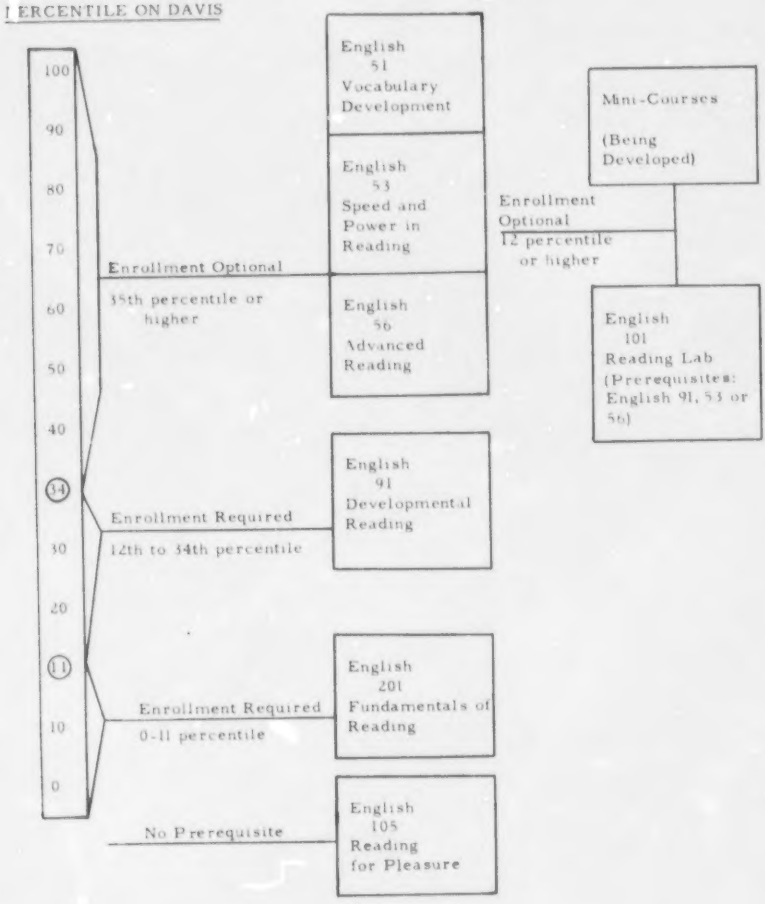
Following analysis of the test, I reviewed all the materials in our former program and studied more than 50 additional college reading textbooks, seeking materials that could aid in remediation in the areas identified. The *Fry Readability Formula* was applied to all selected materials. Portions of 25 reading textbooks and several taped programs were each assigned code numbers.

I next prepared a program of remediation which has been designed on a graduated scale of difficulty; in other words, a criterion-referenced program evolved. If a student scores 60% on Main Idea, for example, his assignment

differs from the student who scores 10%. Finally, I compiled and prepared post tests for each category so that after a student completes his assignments in an area, he is tested to see what improvement he has made. Testing results have been tallied quarterly.

Students who score between the 12th and 34th percentile on the *Davis Reading Test*, reading approximately between the eighth and tenth grade levels, are now required to take English 91, Developmental Reading, as well as a remedial writing course. The new reading course is a four-unit one

READING IMPROVEMENT COURSES AND THEIR RELATIONSHIP TO DAVIS READING TEST SCORES



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and meets daily, three times a week in a classroom and twice a week in the reading lab. Students have the option of a letter grade or credit/no credit, and the course is a transferable elective to State universities and colleges. Enrollment in a section is kept to a maximum of 25 students; approximately ten to twelve day and night sections are offered quarterly.

The test analysis data, coding system, and prescriptive lessons have all been programmed into an IBM 370-135 computer. After a student enrolls in English 91, he is given the Stanford test during the first week of classes. The test takes two-and-one-half hours to administer and is computer-scored within 24 hours. We have found that students are not negative about this test despite its length. During its administration, instructors point out that the testing is meant to be diagnostic in nature and students have been quite amazed and interested to learn that the test analysis is computerized. In this way, we have managed to allay test anxiety to some extent. Also, students who have been besieged by most standardized tests in the past find this one unique, and many students have indicated that they feel, for the first time, they are being given specific information about their strengths and weaknesses as readers and are glad to be assigned lessons to work on only in areas of need. However, diagnosis and prescription begins, and does not end, with the computer. The instructor receives two copies of the Computer Study Guide printout and, after examining the final test results, prioritizes the work asignments for each student. If a student scores above 80% on a category, no assignment is required. The entire test is analyzed in class, and each student writes an assessment of his performance which is eventually discussed with him in a conference session with the instructor.

The reading lab has been so organized that each section, or class, of students using the lab makes maximum use of its time. Work-study aides color-code folders by section prior to the beginning of each quarter and process a number of forms created for efficient use of materials. Prior to any lab work, each class section is given an orientation to the lab. The student works at an individual carrel and is aided by an instructor and tutors. The Tutorial Center allocates almost 45 hours of tutoring assistance to the lab per week; one-to-one tutoring is also available. We also employ a full-time certificated lab technician.

When a student finishes a lab assignment lesson, he must complete a Summary and Evaluation form which is reviewed by his instructor. The form helps determine whether the student understood and learned from the assignment. After the student completes all the work he has been assigned within one category, he must score 70% or higher on the post test before he begins work on a new category. If he scores below 70%, he must confer with his instructor and is given further remediation.

The classroom portion of the program not only reinforces practice the student has had in the lab but attempts to reach the student through different modalities of learning. Some work is, of course, achieved through the traditional lecture style and traditional timed readings, but there are also

small group session assignments, interaction through discussion, and class projects designed for individual students.

Upon completion of English 91, if a student feels more need for improvement or if he has been unable to complete his Computer Study Guide assignments, he may enroll in English 101, Reading Lab. For each 33 hours of instructor-guided lab contact, the student earns one unit of non-transferable credit. He is also counseled and may work on lessons which have not been programmed into the computer if such are his needs. Approximately one-fourth the students enrolled in developmental reading per quarter continue in the lab component and/or enroll in advanced reading courses. Individualized lab courses are being developed. For example, I designed a diagnostic-prescriptive-evaluative spelling lab course last year. Plans are underway for structuring a basic vocabulary lab course and a rate improvement course.

General conclusions

The results of findings from visitations to 25 college reading programs affirmed my conviction that no two schools need ever design the same program, but that interchange and exchange of ideas can be invaluable in adaptations one makes in his or her own program. Each college's reading program is as viable as the people involved and committed to that program. Programs I found were strongest where administrative backing was strong and where effective support systems were present. My final conclusion, after visiting the colleges, was that what we needed at DeAnza was an eclectic program, one that employed extensive diagnostic testing to determine each student's needs; a course of prescription, utilizing textbook materials, instructor-made materials, taped programs and published kits and machines for motivational tools; a strong core of well-trained tutors and para-professionals; a balanced combination of individualized, self-paced lab practice and classroom interaction; and, most importantly, instructors trained in the teaching of reading and who understand the needs of the adult learner. The six full-time reading instructors at DeAnza meet with the Division Chairman monthly to evalute segments of the program and to plan revisions and expansion. At the end of each quarter, for example, all the Summary and Evaluation forms which students have completed are compiled, analyzed, and tallied. Indeed, evaluation of the program is on-going for us in every sense. Not only do we evaluate the lessons compiled for our students, but we have tabulated results of all testing done in order to study trends and have also devised our own Survey of Reading Population form to try to better understand and learn about our reading population in order to meet their specific needs as much as possible. For any program to be viable and on-going, adaptation and assessment are needed, and that is an integral part of our philosophy at DeAnza. Despite computerization, we do not have a rigid, firmly-established, inflexible program that will be the same next year as it was this year, but rather, it will change as we continue

to discover the varying needs of our students. By Fall 1977, the Computer Study Guide will have undergone a significant metamorphosis from the one originally programmed in 1975. This willingness to create a program whose flexibility lends itself to change is a hallmark of our program and constitutes what I believe a developmental reading program at a community college needs to be.

A MATHEMATICS LEARNING CENTER — PROGRESS REPORT

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Purpose and procedures

The purpose of this study was to consider the philosophy and application of individualized instruction for mathematics, the development of audio-tutorial and computer programs as effective tools for improving mathematics instructions, and the role of a Mathematics Learning Center in coordination of these activities.

A mathematics program has been developed which attempts to bring an academically deficient student's mathematics background up to minimum standards in as effective and efficient a manner as possible. The three basic components of the program are: 1. tests to diagnose and evaluate, 2. placement in appropriate materials, and 3. learning strategies designed to guarantee mastery of concepts and skills.

Conclusions

1. Students vary widely among themselves in mathematical deficiencies and learning speeds.
2. An effective teaching program must provide constant and individualized diagnosis.
3. Individualized instruction attempts to meet the mathematical needs of all students.
4. Audio-tutorial materials and computer programs have been successfully used by students in the mathematics learning center environment as effective learning tools.
5. The math learning center programs provide for a close student-teacher relationship.
6. Individualized programs have not provided high student achievement when compared with traditional programs.
7. The learning center can provide students and a variety of learning experiences without the rigidity and restraints of a conventional classroom.

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ABSTRACT

A MODEL FOR EXTENDING THE INDIVIDUALIZATION OF LEARNING PROGRAMS IN A UNIVERSITY ENVIRONMENT

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In order to serve as many students as possible with limited staff, the University Learning Laboratory (ULL) at Colorado State University makes full use of the talents and abilities of graduate teaching assistants and paraprofessionals.

Graduate teaching assistants and paraprofessionals are an integral part in the dissemination of educational services provided by the various ULL departments: Reading, Writing, Science and Math, and Study Skills. They keep communication open between the ULL and academic departments on campus; they plan, prepare, and give instructional materials to students using the ULL; and they provide one-to-one and group tutoring sessions for CSU students. They also present programs and mini-sessions in dormitories, fraternities and sororities. Without the full participation of GTAs and paraprofessionals in the educational programs of the ULL, the services provided to students would be considerably curtailed.

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MANAGEMENT OF A LEARNING ASSISTANCE SECTOR

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The beginnings: a scenario

You are the Director or Coordinator of a Learning Assistance Center, Learning Skills Center, Tutorial Center, Reading Lab, or Study Skills Center. Then one day . . .

Your Vice President, who has recently attended a seminar on management in higher education, announces at a faculty meeting that *all departments will participate in an annual program review.*

You open your office mail and read a memo from your Dean or Department Chairperson that indicates that *your department budget for the next fiscal year will be judged by PPBS criteria* and that *"institutional dollars will henceforth be allocated to programs based on results measured against written objectives."*

You are sitting at your desk one Friday afternoon in late May, putting the finishing touches on your annual report, and you reflect on all the projects you started and on all the projects you thought about starting. "There must be a better way," you muse, "to serve more students, to find out how successful center programs and materials are, to train center staff, to meet institutional crises, to maintain quality service and programs."

There is a better way. It is the purpose of this article to help you cope with any or all of the situations fantasized above. If none of these has happened to you yet, this article may stimulate you to prepare for that day when you decide to work at getting more out of the resources you manage so that your center can help more students "to learn more in less time with greater ease and confidence."

A second beginning: resources accountability

You have taken the first step towards accountability when you recognize that you could be doing more with the resources that you manage.

These resources can be divided into five categories: (1) space; (2) program equipment and furnishings; (3) program materials; (4) personnel; and (5) funds. Let's look at each of these in detail to see how managers can get more out of the resources they have.

Space

The space you have should be analyzed to determine if its allocation, location, and arrangement are operationally efficient for program effectiveness. Here are some questions you should be asking: "What activity or activities will occur in this space? What and how many pieces of equipment (carrels, blackboard, screen, bookshelves, cabinets, chairs, etc.) are needed to implement these activities? How are these furnishings best arranged to facilitate these activities? What activities can share the same space? What other considerations (security, visibility, noise, and movement) impact on the design and furnishing of this space?"

The following description of the Conference/Training Room of the Learning Assistance Center at California State University, Long Beach illustrates how this analysis can contribute to operational efficiency. The room is 36 feet long by 12 feet wide. The door has a glass window inset at eye level so that one can see from the outside corridor whether any activity is occurring within the room. This lessens the possibility of disturbances to the occupants and also allows for managerial observations of activities. The furnishings in the room, consisting of ten 3' x 5' tables and twenty chairs, were selected so that they could be arranged according to one of our uses for this space: (1) as a conference room for weekly staff meetings, biweekly facilitator case conferences and "think tank" problem solving sessions; (2) as an audiovisual presentation area for learning skills workshops and class orientations to the Learning Assistance Center; (3) as an exhibit area for facility orientation to LAC equipment and materials; and (4) as a visitor briefing area where the focus is on specially prepared wall visuals that highlight LAC objectives and statistics, programmatic interrelationships with the sixty-five departments of the University, external relationships with other state postsecondary institutions, and a display of participants in the Learning Assistance Support System week-long intensive training programs.

Electric outlets have been spaced around the room to support the audiovisual activities needed for either audiovisual presentations or exhibits. On the back wall is a large screen concealed in a ceiling box and electrically-operated by a wall switch. Also on the back wall are a wall-to-wall blackboard and a swing-out chart pad. Near the screen is a switch that controls the lights, dimming them for slide, filmstrip, or film presentations. Another switch nearby allows the instructor to have remote control of a slide projector along with a filmstrip projector, both synchronized to a cassette recorder/player. An overhead projector and podium complete the room's furnishings.

Through planned design, this Conference/Training room serves as an administrative center, a learning skills workshop area, a staff and professional training facility, a briefing room, and an exhibit area.

Program equipment and furnishings

Accountability for program equipment and furnishings can be measured against three concerns: (1) acquisition in sufficient quantity to implement and maintain program activities; (2) security from theft, damage, or unauthorized use; and (3) cost-effectiveness.

Acquisition to an imaginative and tenacious manager means more than purchase. It involves searching for and liberating equipment and furnishings that stand idle or are stored on campus. It also involves keeping a "wish-book" of needed items. When an unexpected budget bonanza is announced or a grant is to be written — always with an immediate deadline — this pre-planning yields immediately item name, catalogue number, cost, specifications, and vendor.

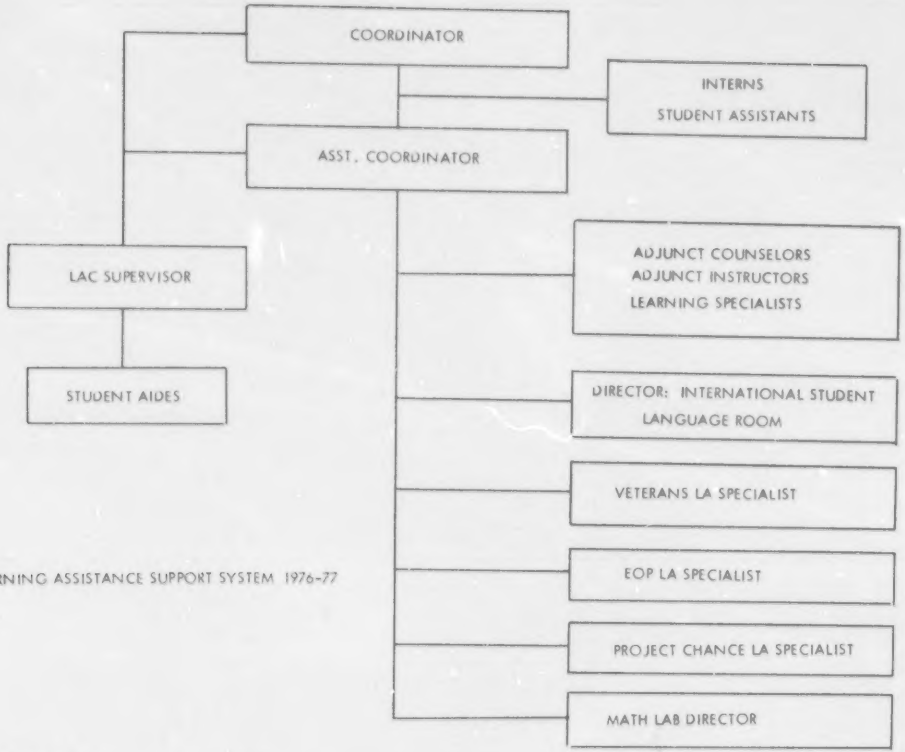
Security to an accountable manager means taking routine measures to insure that equipment is not stolen. The use of attachments designed by local technicians as well as commercially available lock-downs will minimize equipment loss. A twice-a-day inventory of all equipment, as performed by LAC aides at CSU Long Beach, alerts the manager for immediate referral to campus police should any loss be noted. Damage to equipment is lessened when aides assume responsibility to load equipment like filmstrip projectors, videocassette players, and Auto-Tutors.

Security to an accountable manager also may mean assigning responsibility for operation of special equipment like a cassette duplicator or a speech compressor to aides who have received training in its operation. Cost-effectiveness of equipment and furnishings can be achieved through a purchasing plan that minimizes the need for stockpiling different replacement parts, through purchase of equpiment that is easily maintained and repaired by campus technicians, and through proper maintenance on a scheduled basis. A regular perusal of product reviews in periodicals such as *The Journal, Training in Business and Industry, Audiovisual Instruction,* and *Epiegram* can help a manager make intelligent purchasing decisions.

Program materials

Selection of program materials should be the responsibility of the tutorial and learning skills specialists who are working with students. Their acquisition should reflect a diagnostic/prescriptive approach to learning skills development. Whenever possible, materials should be previewed before they are adopted. Previewing, as used here, means experiencing the program material both as a learner and as a learning facilitator with at least one student.

A center's collection of program materials should represent a variety of print and media formats at different levels of readability and listenability. It should be comprehensive, covering skills such as time management, task



LEARNING ASSISTANCE SUPPORT SYSTEM 1976-77

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organization, study/reading, listening-notemaking, test taking, writing, computation, memory, vocabulary, spelling, and library research.

Personnel

This is the single most critical resource for the development, implementation, maintenance, improvement, and expansion of learning assistance programs and services. Learning assistance personnel can be classified as administrative, operational, programmatic, and consultative. A look at the organizational chart for the Learning Assistance Support System (LASS) at CSU Long Beach indicates these divisions. This Learning Assistance Center is both the Support System headquarters as well as its program and services facility.

Each position has a written job description that is reviewed periodically. The facility Supervisor is responsible for the LAC Aides, the Assistant Coordinator for specially assigned personnel such as Counseling Interns, Student Assistants, and professional trainees from other institutions. Their responsibilities include recruiting, selecting, training, and supervising assigned personnel. A hallmark of LASS is its emphasis on OJT (on the job training) for all personnel. All LAC aides meet with coordinators and supervisor every Monday from 12:00 to 1:00 p.m. Program facilitators meet every other week with coordinators for case conferences. This is particularly important since most of the Center's program facilitators are adjunct instructor/counselors who work in the Center a specified number of hours weekly for $1.00 a semester. The three senior administrators meet every week to review administrative details as well as programmatic and operational aspects of the Center and the Support System. This review follows an established agenda that is based on a special checklist kept by each administrator. Agenda items include calendar of upcoming activities for the week; budget report; personnel concerns; training needs; status of equipment, materials, and facility; programs and services ideas; review of grant possibilities; public relations statistics; evaluation data on Center; and current status of annual objectives.

Consultative personnel at CSULB include the Testing officer, a psychometrist, the Faculty Development officer, biofeedback, test anxiety, and behavior modification specialists, psychiatrists, clinical therapists, audiovisual specialists, and systems analysts — University personnel who not only consult but regularly function as "cost-free" support personnel.

Funds

Funds fall into two categories: monies budgeted by the institution ("hard" money) and monies received through grants or awards. Programs achieve stability when they become an integral part of the institutional budgeting process.

As education moves toward an era of accountability, budgeting becomes more and more a process of programmatic justification. Input (funds and other resources) must match output (number of clients served, reduc-

tion of attrition, salvaging probation students). Corporate terms like ROI (return on investment), zero based budgeting, cost-effectiveness, and cost benefits analysis are being used more frequently in budget announcements and performance reviews. To cope with this new approach in program budgeting, a manager needs a management system that has been described by Deegan and Fritz in *MBO Goes to College* as "...a total system of management, an attempt to incorporate all the things a manager ought to be doing into an organized effort. It is not any *one* of the many tools a manager will find helpful from one situation to the next: it is the whole toolbox" (see Reading List). This system of total management is known as MBO, management by objectives. Objectives are ways and means of achieving program outcomes that are desirable as well as possible.

The ends: where it all begins and ends and begins again

"Ends," as used here, is a synonym for "outcomes" — the *sin qua non* of program accountability. All of the manager's resources have been allocated or secured to implement a mission that is institutionally consistent. Since the Learning Assistance Support System at CSU Long Beach is an outreach program of Counseling and Human Development Services, which, in turn, is a division of Student Affairs, its mission must be consistent with the mission of these two larger sectors. In turn, their missions are consistent with the larger mission of the University.

Missions are usually stated in global terms, as you can see from the wording of the mission statement for the CSU Long Beach Learning Assistance Support System:

> To mobilize for effective and efficient utilization by students, staff, faculty, and administration all existing campus, community, and CSUC resources — including people, facilities, equipment, materials, programs, research, and information — to support individuals, departments, or other campus groups who desire to learn more in less time with greater ease and confidence.

Goal statements, such as the six reproduced below, serve to delineate the limits or general areas of a mission's activities:

1. To assist learners to learn by providing accessible environments for a dynamic interface with equipment, materials, and learning facilities.
2. To prevent learning failures and to increase learning sophistication in personal learning skills by providing opportunities for learners to "learn to learn."
3. To recruit and train personnel for LASS programs and services.
4. To publicize programs and services of LASS to CSULB students, faculty, staff, and administrators.
5. To continue to adapt LASS to the needs and expectancies of CSULB consistent with the articulated goals and available resources of the institution.

6. To demonstrate the viability of LASS as a campus change agent in developing and implementing approaches to learning and instruction that are individualized, personalized, cybernetic, mathemagenic, and accountable.

Objectives further specify divisions of goals. Some of the thirty-eight objectives to which LASS allocated its resources for the year 1976-77 appear below. The numbers indicate both its goal and its sequence within the goal.

1.1 To continue physical development of the Learning Assistance Center.
1.4 To develop campus-wide tutorial services.
1.7 To assist in the development of a Learning Center for the School of Natural Sciences.
2.1 To present at least 10 learning skills workshops each semester.
2.7 To implement computerization of the *Survey of Reading/Study Efficiency*.
3.1 To recruit and train at least five potential adjunct facilitators for LAC.
3.7 To explore with School of Education ways and means to recruit, train, and offer experience for students in tutoring and learning skills facilitation.
4.1 To implement at least 20 public relations activities that reach campus personnel.
5.3 To support faculty and staff development.
5.4 To update the LASS five-year plan.
6.3 To have at least one evaluation of LASS by an outside consultant.

The Learning Assistance Support System at CSULB has published annually for the five years of its existence a statement of its missions, goals, and objectives. These statements have been included in the five-year planning document of the Student Affairs Division, reviewed by the President and his management team in 1975, and by the Program Coordinators Advisory Council of Counseling and Human Development Services prior to each budget presentation. This annual statement is developed by the coordinators and presented for acceptance to the total LASS staff at its annual fall organization development workshop. It is subsequently reviewed by the total staff at the spring organizational renewal workshop, providing feed back and input for the next year's statement. Resources for the Learning Assistance Support System are directly related to this annual document. Without such a document, program growth and improvement, much less its implementation, cannot be monitored or measured.

In addition to this ongoing evaluation of program objectives, a manager should be concerned about developing and using a system to monitor both throughput and usage of resources. These data as they are accumulated, sorted, and analyzed can be useful as an index of accountability when presented to a budget panel or incorporated into the annual report. Such data,

when collected and posted regularly, contribute to an ongoing monitoring system that alerts the manager to the effectiveness and efficiency of a center's operations.

Among the data that are regularly collected as measures of LAC output are the following: electric eye daily count; materials usage and evaluation by learners; learner station use by time periods; conference/training room use by groups; special population statistics for veterans, international students, math tutorials; number of visitors; testimonials; publicity; and classroom presentations by staff.

The end: a final scenario

. . . You get up from your desk, fatigued but satisfied with the final draft of your annual report: a report complete with facts and figures that indicate you have reached 80% of your annual objectives; a report that includes statistics on Center usage, staff workload, and internal evaluations of programs, services, materials, and procedures by students, aides, facilitators, and faculty; a report that includes an outside evaluation of your program. You walk toward the door, flick off the lights, and ask yourself: "Why didn't I learn about and use management techniques years ago?"

A SHORT READING LIST

1. *How to Run Any Organization* by Theodore Caplow. Hinsdale, Illinois: The Dryden Press, 1976.

   A short, easy handbook to help people run a small organization successfully. Its purpose, according to the author, is ". . . to help the man or woman responsible for running an organization to do the job in a way that fulfills the organization's collective purposes, satisfies the manager, contents his followers, and confuses his enemies, if any."
2. *MBO Goes to College* by Arthur X. Deegan II and Roger J. Fritz. Boulder, Colorado: University of Colorado, 1975.

   A management book written for managers in higher education. Includes an institutional needs analysis, goal setting exercise, development of key result areas, practice in writing objectives. If you have time to read only one book on management, this text will give you both a theoretical background and useful exercises to understand and adapt MBO to your needs.
3. "Management by Objectives," *The Best of ERIC* (April, 1976). Eugene, Oregon: ERIC Clearinghouse on Educational Management.

   An annotated bibliography of twelve writings on MBO that were selected for educators from items in the *RIE* and *CIJE*.
4. "Management Development: Where Can You Turn," *Training* (November, 1975). Pp. 24-31, 38.

   A list of 116 commercially available management training programs

and courses arranged by medium, listed alphabetically by title, and annotated for the busy manager.

5. "Through the Labyrinth: An Approach to Reading in Behavioral Science" by Fred Massarik and Bruce E. Krueger. *California Management Review* (Winter, 1970). Pp. 70-77.

   An overview of 67 writings to assist practitioners and managers in understanding the interdisciplinary concepts of behavior sciences: organizational psychology, systems, change, group methods, and motivation.

GUIDELINES FOR ENERGIZING THE ADULT PERFORMANCE LEVEL (APL) CURRICULUM DEVELOPMENT PROCESS

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It is becoming apparent that the results of the Adult Performance Level studies (APL) will have a growing impact on curriculum development in college reading and learning assistance programs throughout the country. Announcing the results of the APL Study (3), United States Commissioner of Education Terrell H. Bell encouraged staff development and special projects which focus on the translation of the APL objectives into curriculum.

In many cases as college faculties begin to build a curriculum around the analysis of the requirements of daily living identified in the APL studies, the curriculum development process will be a group, rather than an individual, effort. Teachers of adults use group activities in their classroom instruction and recognize their need for training in interpersonal relations and group dynamics, in order to use such instruction effectively. (4, 8, 11)

However, a different kind of skill is needed when college instructors are required to assist their colleagues in small group activities designed to develop curriculum. Such task groups are often operational for much longer periods of time than are student groups; they tend to have longer range and more complex goals. Faculty-members of task groups tend to have a much greater commitment to achieving the goals of their group than do student-members, and thus may be more aware of their responsibility for the decisions which they reach.

It is therefore the purpose of this paper to present guidelines to assist the faculty member responsible for coordinating the work of a faculty task group in developing APL-related curriculum. These guidelines are designed to help the faculty member anticipate and prevent problems in interpersonal relations and group dynamics which faculty task groups may encounter as they attempt to build curriculum around the APL model. The guidelines should also help the faculty member analyze problems that do

occur despite such planning and determine methods of resolving them.

Problem-solving procedures

The first guideline is to determine clear problem-solving procedures for the group to follow.

Before such a group is established, certain assumptions about the nature of task groups should be reviewed. The following are suggested by Luft's discussion (9:30) of group versus individual productivity. First, problems calling for a wide variety of skills and information or the cross-checking of facts and ideas seem to call for a group approach. In this regard, curriculum development certainly seems to require a group problem-solving approach, as both content and process of instruction will apparently be affected by APL studies.

Second, if goals are shared, then there is greater likelihood for cooperative effort. Curriculum development in APL appears to be of such an urgent nature, that faculty morale and productivity should be high. If it is not, it may be because some members of the group have not accepted the goal of such curriculum development activities as valid.

Third, in general, the smaller the size of the task group, the better it will function, provided that the necessary diversity of skills and group maintenance resources are present. The APL curriculum task group will probably by its nature be a small one. If it is too small, the faculty may wish to invite others to join them.

Fourth, while a group may be a source of strong interpersonal stimulation, it may also generate its own conformity pressures. Deviants from group standards may even be rejected by the group (5). Recognizing this fact may help group members keep communications open and encourage diverse opinions.

Keeping these assumptions about the group process in mind, the APL curriculum task force leader can select and present to the task group a problem-solving procedure for them to follow. A model, such as the one developed by Osen (12) for college reading instructors or the Right to Read model (15), offers the group a systematic plan for completing their task. It combines the advantages of individual productivity and group efforts, while helping group members identify potential helps and hindrances to achieving the selected goals. These in turn lead to the development of a set of specific strategies for achieving the goals. Each of these models can and should be adapted to fit the unique needs of the task group.

Interpersonal relations in the task group

The second guideline is to recognize the effect interpersonal relations may have on implementing the strategies which the task grroup has developed. Those responsible for coordinating the work of curriculum task groups may find helpful Schutz's description (16) of the interpersonal rela-

tions problems which occur throughout the course of the development and resolution of the group itself. Schutz's research indicated that all three problem areas are present continuously throughout the life of a group. At any given stage, however, usually only one of the phases is emphasized.

The first phase involves the problem of *inclusion*. At this phase the task group member could be expected to be establishing himself as an individual and also a member of the group. He is testing to see if he will be given the group's attention when he makes suggestions. He is also deciding how much of himself to invest in the group's efforts. Since anxiety may be high at this stage, task group members may exhibit excessive talking or extreme withdrawal behavior. One way the task leader can help facilitate this phase is to provide the group with a decision which must be made at the outset, such as deciding whether or not to take minutes, or have refreshments. In their discussion of this relatively unemotional matter, task group members are able to learn about each other and the leader, and begin to define their roles in the group.

Once the problems of inclusion have been sufficiently resolved, *control* problems arise. These problems usually occur at the time the task group is introduced to the problem-solving procedure to be used. These problems center around the way in which responsibility will be shared and power distributed. Characteristic of this stage is a struggle for leadership and concern over the way tasks are structured. Techniques such as brainstorming (13), images of potentiality and force-field analysis (10), and the Phillips 66 method (14) can be employed by the leader to facilitate interpersonal communication during this phase.

When control problems are under sufficient control, the task group next faces problems of *affection*. Each member of the group is striving to achieve what will be for both the individual and the group a comfortable level of affection-giving and affection-receiving. As a result, emotions are heightened and may lead either to expressions of positive feelings or outright hostility. Members may be worried about whether or not they are liked by the group, or specific individuals within the group. At this point group members may be ready for a discussion of the Johari Window, which represents the awareness people have of themselves and others. Activities related to the Johari Window construct occur in a wide cross section of academic disciplines, including speech (6), counseling (2), and psychology (9).

Problems with group dynamics

A third guideline is to develop resources for dealing with potential problems with group dynamics which may arise as the group continues its work together.

Shepherd (17) has identified several characteristics of successful groups involved in tasks similar to developing APL-related curriculum. These characteristics suggest some questions which the leader may wish to raise when problems in group dynamics arise.

Objectives. Does the group have clear objectives? Do task group members feel that their personal objectives are compatible with the group objectives? *"...the more time a group spends in developing agreement on clear objectives, the less time it need spend in achieving them and the more likely the members' contributions will converge toward a solution"* (17:122).

Role Differentiation. Are group members clear about what is expected of them? Have both official and unofficial leaders been identified? Are they functioning so as to increase communication between members? *The idea that all group members exert an equal amount of leadership may be desirable, but has little support in the literature, according to Shepherd.* (17)

Values and Norms. Does the group share at least some relevant values? Has the group agreed upon norms to govern the behavior of its members? *"Though some differences in values may be present in a successful group, very little difference in norms can be tolerated."* (17:123)

Membership. Is the group heterogeneous? Does it reflect diverse skills, experience, and interests? *However, Shepherd* (17) *oberved that too much heterogeneity may make it impossible for the group to agree on either norms or values.*

Communication. Is communication open and full? Are relevant information and at least some biographical information being shared? Does the group refrain from acting on impulse?

Conclusions

Curriculum development based on the APL studies can be a very rewarding professional experience. However, the nature of the controversies surrounding the presentation of the results of the studies (7) coupled with concurrent action at all levels to implement APL findings in adult education programs have unfortunately added emotional tension to the atmosphere in which this curriculum is being developed.

Guidelines, such as those presented in this paper, can assist those responsible for developing such curriculum plans. However, as Luft has observed, very little seems to be gained from telling people about interpersonal behavior in groups, because "personal attitudes and behavior remain unaffected" (9:2). Therefore, APL curriculm development leaders are urged to obtain firsthand experience in developing their skills in this area through courses, workshops, or training sessions designed to provide hands-on experience to participants in their development of these skills.

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USING PROGRAM ANALYSIS TO AID ACCOUNTABILITY AND PLANNING

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Reading, and particularly remedial reading, needs to be built on empirically-based theories and methods. According to this view, the reading specialist, although a practitioner, is expected to conduct on-going research to establish the effectiveness of his program, to seek answers to questions arising in practice, and to translate research findings to his own work.

To increase certainty that learning takes place continuously throughout the program activities, evaluation efforts must begin during the planning stages and continue as an integral part of the program. Assessment left to the end of a semester or school year (5) assumes the program activities to be independent of external factors, and to proceed lineally toward predetermined outcomes. Clearly, these are incorrect assumptions, as objectives and the mechanisms for reaching them are continuously in flux due to the dynamic interdependencies of the program and its environment. Therefore, evaluation that can be used to assist educational decision making must be based on timely information (5) and be described in behavioral terms (2). An educational program functions effectively and with a high degree of autonomy if feedback data (on quality control and social variances) for each sequence or unit operation is readily available at all times (3).

The notion of accountability requires systematic and continuous collection of objective data — both positive and negative — regarding student activity and learner progress. Verifying the results of the instructional program, entails that evidence be provided that student progress is the consequence of the program, and not due to extraneous influences. For this reason, accountability procedures need to be planned as an integral part of the program from its inception and need to be ongoing throughout. It is essential that an instructional program and all of its components be replicable.

Program analysis is based on open systems principles[1], and follows the

notion — taking a reading program as an example — that the program *imports* poor readers from the environment, *transforms* their reading competencies, and *exports* better readers. Analyzing a program is a time consuming undertaking in that it is *action research* — the analyst needs to enter into a program, study and analyze it, recommend and implement changes, and study and analyze the results.

Ideally, any systems analysis should be conducted by a person not familiar with the program. Such an analysis will yield reliable results if *all* observations are systematically recorded. However, because an outside analyst typically meets with impracticalities in present-day educational settings, I would like to familiarize the practitioner with a basic model of program analysis.

The formal eight-step procedure outlined below follows the "how to" approach and can readily be applied to any existing program. This model has been field-tested (6, 7) and it has been found that skipping a step will fail to give a clear presentation for purposes of analysis. The analytic outcome is to identify program shortcomings as they occur at specific stages within the program functions. For example, provided that some formative evaluation is available, answers are on hand for such questions as "Are the activities of a learner specifically matched to his particular needs?" and "How closely are learner activities related to the educational objectives?". The practitioner who asks the very general question, "What are the reasons for interference with a smoothly functioning routine?" may be surprised to find one key variance to be the interpersonal relations of two or more staff members, or the inavailability of professional assistance, or the lack of individualized instruction. However, whatever the "bug," it will surface in program analysis.

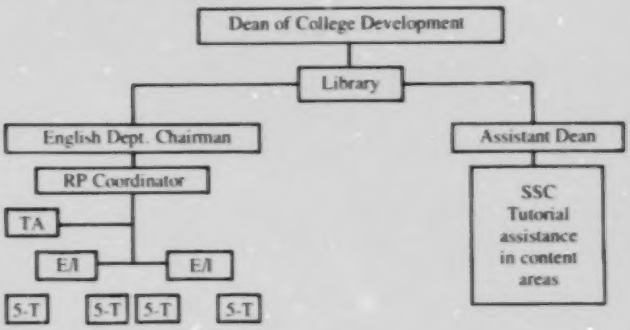
Description of an eight-step program analysis procedure

Overview of the program

The objectives here are to identify the main characteristics of the program and of the environment in which it exists. Information relating to the following subtitles should be sought:

1. **Organizational Structure** of the college as it relates to the reading program (an example is presented in Figure 1). A general description of main characteristics of the relationship between the program, the related systems (e.g., library), and the college environment at large.
2. **Core Technology.** A statement of the *main inputs* — what are the specific student characteristics to qualify for entry into the program, e.g., students whose reading level is below 9th grade; the *main outputs* — what are the specific student characteristics to qualify for leaving the program; and the *transforming processes* — specific learner objectives, e.g., prescriptive learning experiences for each student.
3. A statement of the **Program Objectives.**

Figure 1
ORGANIZATION CHART OF THE READING PROGRAM (RP)
AS AN ADJUNCT TO THE STUDY SKILLS CENTER (SSC)
WITHIN THE ADMINISTRATIVE FUNCTIONS OF THE LIBRARY



Legend: SSC = Study Skills Center
RP = Reading Program
TA = Teaching Assistant
E/I = English Instructor
5-T = five Tutors

Identification of unit operations

The purpose of this step is to identify the main components in the series of learning operations. This may be shown in a type of flow diagram — provided the limited space allows for enough specificity to explain the tasks (Figure 2 presents an example). A unit operation can be identified in that each is a relatively self-contained learning experience and effects an identifiable transformation in the student. A transformation is either a change in learner competence or a change of student location. The focus is on the series of transformations through which the student passes (1).

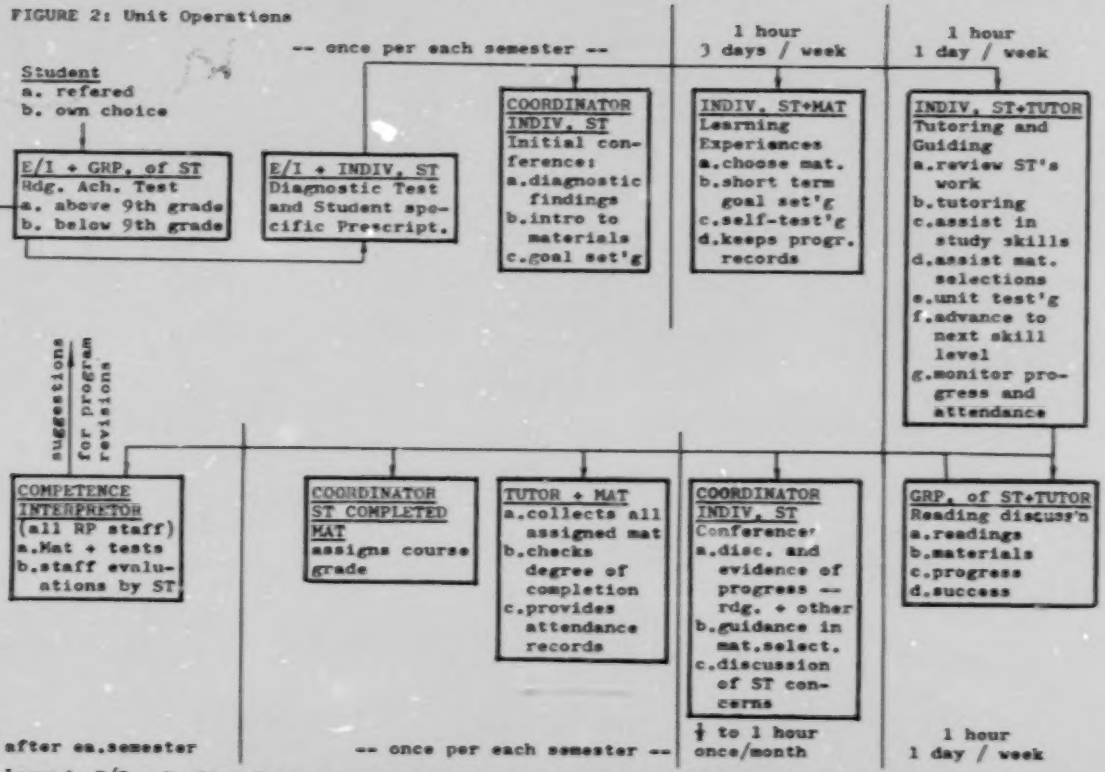
Process variance analysis

The objectives of this stage are to identify the key process variances and the interrelationship between them. A variance indicates deviation from some standard or specification. We are concerned with variances that arise from the student or from the nature of the learning process itself. The *matrix of variances* has been useful in localizing the origin of a variance and identifying the subsequent unit operations that are affected by it.

The sequence of actions in developing a matrix of variances is as follows:

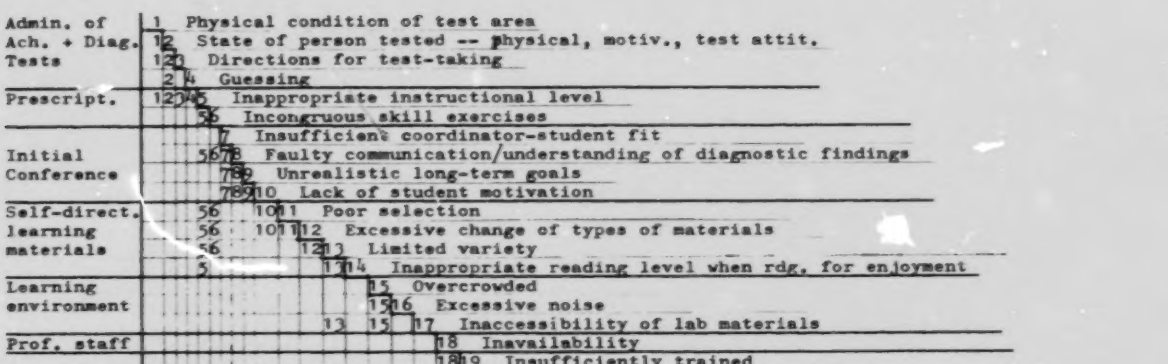
1. Identify main program activities required to achieve learner objectives. (Program activities identified in one reading program appear in the left margin of Figure 3).

FIGURE 2: Unit Operations



Legend: E/I = English Instructor; ST = Student; MAT = Materials (prescribed)

FIGURE 3: Matrix of Variances


Admin. of Ach. + Diag. Tests
1 Physical condition of test area
2 State of person tested -- physical, motiv., test attit.
3 Directions for test-taking
4 Guessing
Prescript.
5 Inappropriate instructional level
6 Incongruous skill exercises
Initial Conference
7 Insufficient coordinator-student fit
8 Faulty communication/understanding of diagnostic findings
9 Unrealistic long-term goals
10 Lack of student motivation
Self-direct. learning materials
11 Poor selection
12 Excessive change of types of materials
13 Limited variety
14 Inappropriate reading level when rdg. for enjoyment
Learning environment
15 Overcrowded
16 Excessive noise
17 Inaccessibility of lab materials
Prof. staff
18 Inavailability
Tutors
19 Insufficiently trained
20 Sibling rivalry
21 Deficient assistance to students
Student - instructor conferences
22 Irregularly held
23 Duration is too short
24 Lack of student progress discussion
25 Deficiency in instructor-student interaction
26 Inadequate student initiation
Learner behavior
27 Irregular attendance
28 Insufficient student motivation
29 Lack of enthusiasm toward task
30 Deficient record keeping
31 Unbeneficial use of study time
32 Insufficient progress
weekly rdg. discussion
33 Lack of information exchange

2. Observe learner behavior and record any variation from the specified program activities. (Variations observed in one reading program appear as numbered statements in Figure 3).
3. Draw a matrix of variance (for an example, see Figure 3), the main purpose of which is to help show up any localized clusters of variances; e.g., the re-occurrence of a numbered statement in several program activities.
4. In the appropriate space, write the numbers of those statements that identify specific variations from the prescribed program activities of each unit operation.
5. The numbers that occur most frequently, are the key variances. A variance may be considered "key" if it obviously affects any of the following: an ability of student production; quality of student production; operating costs (e.g., use of materials, facilities, and professional time); or social costs (e.g., stress and anxiety, uncertainty, and motivation).
6. Describe each key variance in some detail.

Analysis of the social system

The focus here is on the physical and psychological well-being of the individuals involved — directly and indirectly — in the reading program. A review of the organizational structure may be valuable to identify in more detail the relationships — power, control, defenses, situations taken for granted, opportunities — between the people performing a particular role.

1. A table of variance control (for an example, see Figure 4) can be developed by listing the key variances and recording observations of program activities by focusing on these points: Where in the process does the variance occur? Where does it become apparent or noticeable? Where is it controlled? By whom? What tasks does the person have to perform to control it? What information does the person get and from what source to enable him to carry out these control activities?
2. Reasons for inaccurate or insufficient variance control may be many fold and need to be identified before improvements can be attempted. (We are all familiar with the ups and downs of teacher morale and its effect on the teaching process.) For every person "working" in the reading program, the following information needs to be collected: descriptions of the worker's role; identification of the extent to which the workers share a knowledge of each other's tasks; descriptions of work schedules, types of pay systems, and career mobilities for each worker; observations as to the degree that psychological requirements are met — e.g., the desire for on the job recognition, decision-making, belongingness and being liked.

Workers need to be interviewed to supply information on their perceptions of their roles, and the extent to which they see them fulfilling the psychological requirements.

Maintenance system

The intent of this step is to assess to what degree the following are met: the availability of all prescribed materials and the continuous availability of tutors and other teaching support staff to assist students in their learning experiences.

Student system

This step has two objectives:

1. To identify the variances that are passed into the transforming system (reading program) but that *arise* in the system from which the student comes, is part of the student while attending the program, and returns to the environment at completion of his program activities.

Figure 4
TABLE OF VARIANCE CONTROL
(ONE EXAMPLE)

Type of V	V/occurs	V/apparent	V/control
Student: Lack of enthusiasm toward task	Indiv. ST. + MAT Learning Experiences	Coordinator + indiv. ST conferences	Indiv. ST + Tutor

Controller	Controller Activities	Types of Info.	Info. from
Tutor (name)	Identifies to ST the activities he/she needs to re-do, and assists ST on subsequent assignment.	written examples of completed activities.	Tutor Guide for Completed Activities

*Legend: V = Variance
ST = Student
MAT = Material(s)

2. To what extent could these variances be controlled closer to their source, or could their effect upon the transforming system be diminished (e.g., the availability of specific learner experience for a specific student population).

Forces in the wider college environment

The purpose of this step is to identify those forces operating in the college at large that either affect the transforming system's ability to achieve its objectives, or which are likely to lead to a change in those objectives in the foreseeable future.

Conclusion and recommendations for improvement

Major concerns, resulting from the analysis, should be stated and briefly summarized.

Regarding recommendations for improvements, the following are to be emphasized:

1. *Provisions for Key Variance Control.* The objective here is to list things that need to be done to produce optimization of the reading program.
2. *Realistic Reflections.* What are the chances of the above recommendations to reach implementation at identified times? This discussion can serve as a frame of reference from which to develop a number of alternative methods for dealing with the upper levels of the organizational structure of which the reading program is a part (e.g., administrators and school boards).

Summary

A systems approach has been described in a step-by-step-fashion to assist reading teachers in analyzing the learning process from student entry into the program to his exit. One outcome of the analysis is the extent to which deviations from a standard are signaled and corrected. For example, a student who performs the prescribed exercises but shows only minimal progress requires attention and alteration of the transforming process. Formative evaluation — a basic accountability concept — provides data for signaling and for assessing to what extent adjustments have been successful.

In summary, program analysis is useful for identifying and locating variations from program goals, for exposing inadequacies of accountability measures, and for guiding future planning.

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NOTES

The basic characteristics of open systems principles are (4):

a. Negative entropy — systems survive and maintain their characteristic internal order only so long as they import from the environment more energy than they expend in the process of transformation and exportation.
b. Feedback — enables the system to correct its own malfunctioning or changes in the environment and thus maintain a steady state of homeostasis.
c. Homeostasis — a dynamic rather than static balance.
d. Differentiation — open systems are not at rest, their dynamics, as they strive toward growth and survival, call for elaboration and discrimination (due to clusters of unique characteristics).
e. Equifinality — open systems can reach the same final state from different initial conditions and via different paths of development.

THE PRELIMINARY STAGE: THE SECRET TO SUCCESSFUL GRANTWRITING

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There are three stages involved in the development of a grant proposal: preliminary stage, writing stage, and submission and review stage. This paper will address itself to an examination of tasks involved in the preliminary stage of the development of a grant proposal. The preliminary tasks to be discussed will pertain primarily to the submission of proposals to the federal government for the development and implementation of projects or programs.

The preliminary stage is completed before the writing of the proposal. Nine basic tasks are involved in this stage:

1. selection of a topic
2. researching of literature
3. selection of a funding source
4. initial brainstorming session
5. examination of population to be served, available resources, previously or presently funded projects in area of interest
6. development and/or selection of needs assessment instrument
7. collection, processing and analysis of needs assessment data
8. development of advisory committee
9. development of components for the proposed project.

Selection of a topic

Task one involves the selection of a topic which will specifically define and limit the area of interest of the proposal writer(s). The selecton of a topic should be based upon interests, expertise, and background of the writer(s). Large areas of interest, such as Reading, must be narrowed in scope and well defined. The topic "Reading" can be narrowed in scope by simply attaching words and phrases which qualify the specific area of interest, such as "*reading*, teacher training," or "development of a *reading center* for inmates at the state prison," or "development of curriculum and materials in the area of *critical thinking*."

Researching of literature

Task two involves researching the literature to discover (1) previous studies that have been conducted and relate to the writer's area of interest; (2) what national and international authorities have said in relationship to the writer's subject; and, (3) what work has not been conducted in relationship to the subject. Research findings from the literature to be used in the body of the proposal should lend credibility to the philosophical foundation on which the project will be based and should help the funding source to understand the rationale behind submission of the project.

Selection of a funding source

Selection of an appropriate funding source involves three steps: skimming of the Federal Register Index, reading material from the Federal Register related to the writer's area of interest, and contacting the funding source.

Copies of the Federal Register Index and Federal Register are available in most public libraries. The first step in selecting an appropriate funding source involves skimming the Federal Register Index, according to keywords that the writer has identified as possibly pertaining to his/her area of interest. The Index will provide the writer with coding numbers that will be used in selecting appropriate copies of the Federal Register.

Step two entails reading those sections of the Federal Register identified according to their code numbers from the Federal Register Index. The Federal Register is a daily publication and contains information such as federal regulations governing particular federal agencies, criteria for submitting a proposal to a particular federal agency, agencies that are receiving grant applications, date of submission, and where to write and/or telephone for additional information and a grant application.

Step three involves contacting the funding source for additional information by writing for information and guidelines or by telephoning. Telephone numbers of federal agencies can usually be obtained by calling a general information number published daily in the Federal Register.

The final selection of an appropriate funding source should be based on whether or not the writer: (1) can develop a project according to the criteria set forth by the funding agency; (2) has the time to write the proposal; (3) has the time and resources to complete tasks four through nine; and (4) feels confident that the deadline for submission of the proposal to the funding agency can be met.

Initial brainstorming session

Task four involves bringing together persons whom the writer feels can help him/her design the content for the project and help write the proposal.

If the writer is working with members of the community, school districts, parents, teacher associations or other agencies in submitting a joint proposal, it is essential that all persons who will be involved be present at this initial meeting. From this meeting will come a writing team that will represent all persons, groups or agencies to be involved in the project. This team will work with the Advisory Committee (to be selected at a later date).

Examination of population to be served, available resources, previously or presently funded projects in area of interest

Persons involved in the initial brainstorming session should assist the writer in gathering data pertaining to the population which the project will serve. Data required includes number of persons, age(s), ethnic background, location of College or University, geographical boundaries in relationship to population to be served, and any other data deemed necessary by the writer or required by the funding source which serves to identify specific characteristics of the population.

Task five also involves assessment of resources available for implementation of the proposed project. This includes identifying space available to be used by the project, faculty and others to be employed by the project, equipment available, software available and community resources available to help with the implementation of the project.

At this time it is also necessary for the writer to obtain information regarding previously or presently operating projects funded by the funding agency to whom the proposed project will be submitted. This task can be done by contacting the funding agency and other persons known by the writer to have knowledge of projects. Copies of previously submitted and funded proposals can be obtained by contacting the funding agency or by writing the director of the project. (A proposal, once submitted, becomes public domain, and can be obtained usually at a nominal fee.)

Development and/or selection of needs assessment instrument

Once task five has been completed it is very easy to develop a needs assessment instrument and survey the population to be served. Content of the needs assessment instrument should be based on: (1) specific aspects of the components the writer foresees as becoming a part of the proposal; (2) drawing out the needs of the population; and, (3) developing a psychological rapport with the population to be served.

The needs assessment instrument is the writer's vehicle to obtain support of the population to be served by the project. A good needs assessment instrument will provide the writer with the answer to a question that up to this point has not been answerable: Has the need for the project been established?

Collection, processing and analysis of needs assessment data

Task seven involves sampling the population to be served. Collection of the data usually takes one to three weeks and varies according to the size of the population. The writer should take into consideration when disseminating the instrument (if it is a survey or questionnaire) that recent studies have shown that the best time for a person to receive a survey is on a Wednesday. Therefore, surveys mailed to persons on Monday, to be received by those persons on a Wednesday, will yield the highest response and return of the information needed.

Tabulation of the results can be done either by hand or through the use of a computer. If a computer facility is available to the writer at a minimal charge it may be advantageous to use it. However, if the writer is inexperienced at utilization of the computer and time is of the essence it may be faster to tabulate the data manually. Collection, processing and analysis of the data takes anywhere from two to six weeks. Results of the data have to be included as part of the proposal and will be evaluated for content and analysis accuracy by the team designated to review proposals.

Development of an advisory committee

Recommendations of persons to serve on the advisory committee to the proposed project should be obtained from the persons submitting the proposal. If the proposal is a joint effort, all persons involved should contribute to the development of the advisory committee.

Composition of the advisory committee may vary according to guidelines established by the funding source. Persons asked to serve on the advisory committee should represent persons to be served by the project, persons committed to the goals of the project, persons with knowledge of the area of interest on which the project will be based, persons with influence in the community and persons who will support and contribute to the development and implementation of the project. The writer must note that prior to final completion of the proposal for submission purposes the advisory committee should be given time to read the proposal and submit letters regarding their evaluation of the proposed project. These letters should be included in the proposal when it is ready for submission.

Development of components for the proposed project

Components for the proposed project should be based on the requirements set forth by the funding agency and results of the needs assessment. The advisory committee should review the components prior to submission of the proposal.

When developing the components it is necessary to consider what activities will be used to complete them and how will those activities be

evaluated. After the writer has developed the components he/she is ready to move into stage two, writing of the proposal.

Conclusion

The nine basic tasks outlined in this paper are essential for the development of a grant proposal. Once the proposal writer(s) has carefully completed the preliminary steps the writing of the proposal will be a simplified task, for the content generated in the preliminary steps will become the content of the proposal.

DEVELOPING AN INDIVIDUALIZED COLLEGE READING PROGRAM

Gail Vallance Barrington
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The most important single step to take in instituting an individualized reading program is to take the time to diagnose each student carefully for reading strengths and weaknesses and to ascertain a reading competency level for each skill area. Only with a detailed profile of the student can specific learning needs be met.

The period of diagnosis in the fifteen-week reading program at Grant Mac Ewan Community Colleges lasts for two weeks. Students are given a checksheet of the tests involved and drop into the Skills Center in their free time to complete them. For the most part, tests are self-administered. Instructions are available on tape and test booklets and answer sheets are arranged for easy access.

Prior to entering the college, students take a *Study Skills Appraisal* in order to determine if there are any areas in need of upgrading. Included in the test battery are the *McGraw-Hill Reading Test* (Form A) and the *S.R.A. Writing Skills Test*. Initial placement in the Reading Development course stems from results on the McGraw-Hill.

When a student is given the following list of tests, he is relieved to note that he has already completed two of them:

1. *McGraw-Hill Reading Test*, (Form A), Alton L. Raygor, University of Minnesota, (McGraw-Hill), 1970.
2. *S. R. A. Writing Skills Test*, (Form A), Macklin Thomas, (Science Research Associates), 1960.
3. *Otis-Lennon Mental Ability Test*, (Advanced Level, Form J), Arthur S. Otis & Roger T. Lennon, (Harcourt, Brace & World), 1967.
4. *Slosson Oral Reading Test*, (Informal).
5. *Gray Oral Reading Test*, (Form D), (The Bobbs-Merrill Company, Inc.,) 1963.
6. *Tactics in Reading I Diagnostic Test*, from *Tactics in Reading I*, Olive S. Niles et al, (Scott, Foresman & Co.), 1965.

7. *S. T. E. P. Listening Test*, (Form 2A), (Educational Testing Service), 1957.
8. *Survey of Study Habits and Attitudes*, (Form C), William F. Brown & Wayne H. Holaman, (Psychological Corporation), 1965.
9. *Reading Autobiography*, (Informal), from *Diagnostic Teaching of Reading*, Ruth Strang, (New York), 1964, P. 82.

The two oral reading tests are administered by the instructor on a one-to-one basis during the student's first interview. The *Reading Autobiography* is in essay form and may be completed at home.

The Instructional Assistant, who also mans the Skills Center, compiles the test results onto the *Diagnosis Summary Sheet* (See Appendix) and opens a file for each student. The instructor administers the oral reading tests and, as diagnosis is completed, prepares the *Skills Checklist and Teaching Plan* (Appendix) for each student.

To pinpoint skill needs, the *Reading Skills Checklist* (Appendix) attempts to reflect the reading skills and subskills a student will need to be successful at college.

The results of the nine diagnostic tests are then correlated with five skill areas (Appendix) to determine a student's specific learning needs.

Word attack skills

A student requiring work in word attack skills will possibly demonstrate a slow reading rate in the McGraw-Hill test. Phonics problems may show up in a poor spelling score on the *S. R. A. Writing Skills Test.* He will score at a low grade-level on the *Slosson*, where his weaknesses will be particularly evident in the untimed session. Here you can observe his attempts to unlock unfamiliar words. The *Gray Oral Reading Test* should pursue these problems further and provide error analysis. This student will also probably have difficulty with the sections of the *Tactics I* test dealing with sound, structure, syllabication and dictionary sound.

Comprehension skills

A student needing to improve his comprehension skills may have a low retention score on the *McGraw-Hill* and also in its section on paragraph comprehension. The *S. R. A. Writing Skills Test* may reflect low comprehension in a variety of areas, particularly Sentence Recognition and Sentence Building. A low score on the *Otis-Lennon* can also result from poor comprehension, though this score could also reflect a slow reading rate. Poor comprehension demonstrated in the *McGraw-Hill* and also the *Tactics I* test are often paralleled by similar weaknesses in the *S. T. E. P. Listening Test* which interestingly indicates a lack of sophistication in thinking skills rather than specifically reading skills.

Vocabulary skills

Poor vocabulary skills will surface in the *S. R. A. Writing Skills Test*

and in the section of the *Tactics I* test dealing with Word Families. The *Otis-Lennon* also relies on vocabulary knowledge.

Fluency skills

Fluency deficiencies will show up on the Reading Rate and Flexibility sections of the *McGraw-Hill* test, although we often find that low scores here can reflect initial confusion or anxiety at the beginning of the test, and therefore may not be that valid. The Skimming and Scanning portion may also reflect reading speed and skill at locating material. Again the *Otis-Lennon* score depends on reading rate. Word recognition skill is demonstrated in the flash section of the *Slosson* test. Smoothness or hesitancy and types of repetition will show up on the *Gray Oral Reading Test*, although nervousness or dislike of oral reading may also be involved here.

Study skills

As well as general levels of reading demonstrated in the above skill areas, a low score on Reading to Discover Organization in the *McGraw-Hill* could show a lack of ability to classify material, a skill necessary for note-taking and summarizing. The study-type reading questions may show a student's ability to answer multiple choice type exam questions. The *Survey of Study Habits and Attitudes* reveals some important facts about work methods and delay avoidance, and also about teacher approval and educational acceptance.

The *Reading Autobiography* is in a class of its own. Freewheeling, it reflects the student's personality as none of the other tests do. It reveals valuable information about the student's attitude toward himself, school and books. Experiences in elementary school may be mentioned here which can throw light on the total student profile.

Prescription

After the *Diagnosis Summary Sheet* is completed, the critical problem is to marry skills needs with appropriate developmental materials — materials which also satisfy the student's personal learning style. Materials which have been found effective repeatedly have been organized by grade-level equivalency into the five skill areas.

From a student's *Diagnosis Summary Sheet* it is possible to prescribe materials which are at the appropriate level of difficulty and which deal with the appropriate skill. These materials are then listed on the *Skills Checklist and Teaching Plan* in both Primary and Backup Materials categories. Primary Materials are those most usually successful with students; Backup Materials are alternative modes should the student prefer a different learning style.

The results of diagnosis and prescription are discussed at the student's second interview. Pros and cons of Primary and Backup Materials are considered and the student chooses his course of action. A two-week's chunk of

work is mutually determined and the student takes away a copy of this Assignment Contract; another copy stays in his file. The *Skills Checklist and Teaching Plan* becomes the student's own personal course outline. It is referred to at the bi-weekly interviews to check progress.

The post-test

Although not directly within the confines of this paper on developing a reading program on an individualized basis, a word must be said about how a student graduates from the program. There are three requirements:

1. Satisfactory completion of assigned materials on the *Skills Checklist and Teaching Plan.*
2. Submission of an acceptable Book Report.
3. Completion of the post-test version of the *McGraw-Hill Reading Test* (Form B) with a score of 75%-ile in the Test Total and/or in the Paragraph Comprehension section.

The *McGraw-Hill* post-test is administered in a formal setting during the last week of the Trimester. Testing times are widely publicized and students who are deemed ready at their final interview sign up.

Organization of materials

Materials in our files are organized according to the *Reading Skills Checklist* by skills and sub-skills, and also by grade-level. A cross-referenced card file contains all media forms by skill area and level of difficulty for quick location of alternatives.

Printed materials are made available to the students in the following two ways:

1. Purchase — Nearly all texts mentioned above are kept in stock in our bookstore. A student may purchase his own copy. Answer keys are available in the Skills Center for self-correction.
2. Loan — Copies of these texts and others are available for use in the Skills Center. Individual chapters dealing with specific sub-skills are organized into work packages and filed according to the system. Answer keys are filed with them, followed in many cases by graded levels of self-tests, again with keys. Students have access to the filing cabinets with the help of the Instructional Assistant.

Besides the printed word, a variety of multi-media instructional materials are available. There are tape and workbook sets, filmstrip, tape and workbook sets, work kits on cards, Language Master cards and worksheets, controlled reader filmstrips and workbooks, stop watches and workbooks. Students interested in programs involving the use of equipment are trained in their operation and then are free to use them at will. We have never experienced any problems in this area other than regular wear and tear on materials.

Scheduling

This section is left to the end as every college must have its own particular scheduling headaches. However, this program can work both within the confines of a regular scheduled class hour and also on the individual timetabling method indicated earlier.

Conclusion

After two Trimesters of operation, the outlook for this approach is good. Students' most frequent comment is that they like working in their own timeframe. They also feel that they become more independent learners as a result of the structure of the program. Perhaps the biggest indicator of success is to see students who completed last term come into the Skills Center on occasional free hours to study, or to practice on the Controlled Reader. Having broken with the traditional classroom approach, there is no returning to it. We are on to something much too exciting here, as we recognize our students as the individuals they are.

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Name _____

Program _____

Date _____

DIAGNOSIS SUMMARY SHEET

	Strengths	Weaknesses	Instructional Level
McGraw-Hill Reading Test (A)			
S.R.A. Writing Skills Test (A)			
Otis-Lennon Mental Ability Test (J)			
Slosson Oral Reading Test			
Gray Oral Reading Test			
S.T.E.P. Listening Test (2A)			
Tactics I Diagnostic Test			
Survey of Study Habits & Attitudes			
Reading Autobiography			

Name _____

Program _____

Date _____

SKILLS CHECKLIST AND TEACHING PLAN

	Skill Needs	Primary Materials	Backup Materials
WORD ATTACK	Configuration Recognition		
	Context Analysis		
	Phonic Analysis		
	Structural Analysis		
	Dictionary Analysis		
COMPREHENSION	Retention		
	Main Idea & Details Locating Organizing		
	Interpretation Meaning Relationships Inference Generalization		
	Judgements		
VOCAB	Morphology		
	College Level Vocabulary		
FLUENCY	Skimming		
	Flexibility		
	Speed		
STUDY	Textbooks		
	Library Skills		
	Research		
	Exams		
	Listening		

	McGraw-Hill Reading Test (A)	S.R.A Writing Skills Test (A)	Otis-Lennon Mental Ability Test (J)	Slosson Oral Reading Test	Gray Oral Reading Test (D)	S.T.E.P. Listening Test (2A)	Tactics I Diagnostic Reading Test	Survey of Study Habits and Attitudes (C)	Reading Auto-biography
WORD ATTACK SKILLS	Rate	Spelling		Sound & Structure (untimed)	Error Types Reliance on Aid		Sound Dictionary Sound Structure		
COMPRE-HENSION SKILLS	Retention Main Idea Details Science Critical	Sentence Meaning (Grammar, Punctuation & Mechanics, Sentence Building & Sentence Recognition)	General Knowledge Relationships Logic			Sequence Main Idea Details and Implications Organization & Mood. Validity & Intent Interpretation	Context Sequence Dictionary Meanings Sentence Meanings Paragraph Inference		
VOCABU-LARY SKILLS		Vocabulary Knowledge	Vocabulary Knowledge				Word Families		
FLUENCY SKILLS	Rate Flexibility Skimming and Scanning		Rate	Configuration Speed (Flash)	Smoothness Repitition Rate				
STUDY SKILLS	Organization Study-Type Reading							Delay Avoidance Work Methods (Teacher approval, Educational Acceptance)	

READING SKILLS CHECKLIST

I. WORD ATTACK SKILLS

CONFIGURATION RECOGNITION

1. Rapid number recognition
2. Rapid word recognition
3. Rapid phrase recognition
4. Scanning

CONTEXT ANALYSIS

Knowledge and application of the following nine context clues:

1. Word Function
2. Accent
3. Definitions
4. Restatement
5. Examples
6. Description
7. Key Word
8. Synonyms & Antonyms
9. Sequence of Ideas

PHONIC ANALYSIS

CONSONANTS			VOWELS			
Single	Blends & Di-graph	Single	RWL	Di-graph	Diphongs	
b	bl	sh	a	-r	ai	aw
c*	cl	ch	a			
d	dl	th*	e	-w	ay	au
f	fl	wh	e			
g*	gl	ph	i	-l	ea	oi
h	kl	qu	i			
k	-nk		o		ee	oy
l	-nd		o			
m	br		u		ei	oo
n	cr		u			
p	dr		e			
qu	gr		y			
r	pr					
s*	tr		-e			
t	sc					
v	sk					
w	sm					
x	sn					
y	sp					
z	st					
	scr					
	spr					
	shr					

1. Auditory Discrim.
2. Visual Discrim.
3. Oral Reproduction
4. Application of Phonic Generalizations

NOTE:
c and g have both hard & soft sounds. c tends to be hard when preceding a, o, or u and soft when preceding i, e, and y. g tends to be hard when preceding a, o, and u and soft when preceding e and i.

s has 3 sounds - s, z, & sh.

th has 2 sounds - thin & then (voiced & unvoiced)

STRUCTURAL ANALYSIS

1. STRUCTURAL ELEMENT RECOGNITION
   a) Roots, Compounds, Contractions
   b) Endings, Prefixes, Suffixes
2. SYLLABICATION
   a) Auditory discrimination
   b) Visual discrimination
   c) Open & closed syllables
   d) Division generalizations (3)
      i. VCCV
      ii. VCV
      iii. -Cle
3. ACCENT
   a) Auditory discrimination
   b) Accent generalizations (6)
      i. 2 syllables, first
      ii. derived forms, root
      iii. prefix unaccented
      iv. 2 vowels in last, accent
      v. syllable before CC accent
      vi. 3 plus, first or second

DICTIONARY ANALYSIS

1. Knowledge of alphabetization
2. Familiarity with locating words
3. Knowledge of diacritical markings
4. Ability to produce appropriate sounds for phonetic spellings
5. Knowledge of types of information available in a dictionary

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READING SKILLS CHECKLIST CONT'D

II. COMPREHENSION SKILLS

RETENTION

Ability to recall:

1. Facts, Dates, Definitions
2. Directions given
3. Content of Narrative Material
4. Content of Factual Material
5. Sequence of Events
6. Main Ideas

ORGANIZING MAIN IDEA & DETAILS

1. Locating Main Idea
2. Classifying Main Idea with Significant Details
3. Outlining
4. Notetaking
5. Summarizing
6. Organizing written material into graphic form & vice versa

INTERPRETATION

1. Meaning
   a. Word Meaning
   b. Phrase Meaning
   c. Sentence Meaning
   d. Unstated Main Idea
2. Prediction
   a. Convergent Outcomes (the most likely)
   b. Divergent Outcomes (unique ideas)
3. Recognizing Relationships
   a. Stated Relationships
      i. Simple Listing
      ii. Time Order
      iii. Comparison-Contrast
      iv. Cause-Effect
   b. Unstated Relationships (given cause, find effect, etc.)
4. Inference
   a. Time, Place, Mood
   b. Motivation
   c. Author's Purpose
5. Generalization
   a. Create examples for a generalization
   b. Generalize from examples
   c. Apply ideas to new situations

JUDGEMENTS

1. Critical
   a. Judge internal criteria for consistency, logic, etc.
   b. Judge external criteria to establish validity of source, compare with other sources
   c. Distinguish between fact and opinion
   d. Detect propaganda techniques:
      i. Bad & Glad Names
      ii. Transfer
      iii. Testimonial
      iv. Band Wagon
      v. Card Stacking, etc.
   e. Determine author's audience
   f. Formulate opinion
   g. Apply this opinion to other examples
2. Emotional
   a. Empathize with character, situation, etc.
   b. Respond to imagery
   c. Expand imagination
   d. Acting out
   e. Creative Writing . . .

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READING SKILLS CHECKLIST CON'D

III. VOCABULARY SKILLS

1. Morphology
   a. Root Meanings
   b. Prefix Meanings
   c. Suffix Meanings
   d. Unlocking Meanings of New Words
2. Development of a College Level Vocabulary
3. Denotation
   a. Multiple Meanings
   b. Common words with Specialized Meanings
4. Connotation
   a. Informative Connotation
   b. Affective Connotation
   c. Taboos-Euphemism & Antieuphemism
   d. Built-in Judgements
5. Symbols & Abbreviations in Common Use; Acronyms
6. Figurative Language
7. Diachronic Linguistics
   a. Amelioration & Pejoration
   b. Specialization & Generalization
   c. Slang
   d. Word Origins
   e. New Words

IV. FLUENCY SKILLS

1. Previewing
2. Skimming
3. Flexibility
4. Speed
5. Reviewing

V. STUDY SKILLS

1. Reading a Text
   a. Book Parts & Uses
      i. Titles
      ii. Preface
      iii. Introduction
      iv. Table of Contents
      v. Publishing Information
      vi. List of Illustrations
      vii. Index
      viii. Bibliography
      ix. Footnotes
      x. Glossary
      xi. Appendix
   b. Graphic Aids
      i. Illustrations
      ii. Diagrams
      iii. Charts
      iv. Tables
      v. Graphs
   c. SQ3R Method
2. Library Skills
   a. Book Location
   b. Periodical Location
   c. Reference Aids
      i. Atlases
      ii. Encyclopedias
      iii. Dictionaries, etc.
3. Reading for Research Purposes
4. Exam Preparation
5. Reading Exam Questions
   a. Essay Questions
   b. Short Answer Questions
   c. True-False
   d. Multiple Choice
6. Listening Skills . . .

G. V. Barrington, 1977

VIDEOTAPING: A USEFUL TECHNIQUE FOR LEARNING ASSISTANCE PRACTITIONERS

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Many colleges and universities have the video equipment available for learning assistance practitioners to use in developing video mini-programs for their programs and services. As a medium, video lends itself to instant program production. Unlike film, videotape does not require processing. It can be played back immediately to determine if the shoot was successful.

Types of programs

Videotape as a teaching/learning medium has been used in college skills courses and learning assistance centers to train practitioners and tutors, to instruct large numbers of students, to modify study behaviors, and to model sounds for beginning adult readers. Five specific uses of video for reading and study skills are described below:

1. In the Learning Assistance Center at California State University, Long Beach, counseling interns, adjunct counselors, and LASS training participants, view an intake interview by a master diagnostician to prepare them to use the *Survey of Reading/Study Efficiency* in developing individualized and personalized prescriptions for reading and study skills (3).
2. At the Reading Center of Ohlone College, sixteen reading video tutortapes are used to train student tutors in the administration of diagnostic reading tests and in the use of prescriptive materials (7).
3. A commercial program of twelve 30-minute videotapes, entitled *Formula Phonics*, authored by Edward Vail (11), is used in adult learning centers and college reading centers to teach reading by phonics.
4. A series of ten 30-minute videotapes developed at Colorado State University, Fort Collins, were used to provide a uniformly consistent study skills course to university students (12).

5. At Dalhousie University in Nova Scotia, videotaping was used to help students change their study behaviors through reinforcement contingencies (5).

Steps in developing a videotape

A videotape lesson, like any teaching/learning lesson, is concerned with an understanding of the audience and with the sequencing of tasks or information to attain stated objectives. However, as an audio-visual medium, video has its own special production techniques which can be reduced to the five steps below:

Scripting

As with any instructional lesson, write out your objectives first. Then, following your objectives, write a brief treatment. A treatment is a synopsis of activities or information to be presented in the videotaped lesson along with a description of its audience and the manner of presentation. The treatment is made visual through the development of a story-board. Use a card format for your story-board picturing each sequence on one or more cards. By displaying the cards in lesson sequence, you can think through any changes, additions, or deletions simply by moving, adding, or taking away any of the story-board cards. Next, look carefully at your pictures to add the word script. Decide what needs to be said so that the learner can understand the visual and what information must be spoken or read that is not or cannot be presented visually. Hints for writing scripts in a conversational style that will hold audience attention can be found in articles such as Mike Lewman's (6) "Writing Effective Narration," one of many "how-to" articles published regularly in *Educational and Industrial Television*.

Talent preparation

Both the director and talent can avoid many of the common pitfalls most often encountered in videotaping by reading Bob Falkner's (1) "Tips for First-Time Talent" and "Tips for Talent" (2). A sample release form that should be signed before shooting begins is included in the second article. Falkner provides practical advice on dress, make-up, behavior, and scene transitions. Falkner's emphasis is on pre-planning as the key to successful production.

Props, setting, and graphics

Adapt imaginatively to create your settings and props. Your graphics, planned on the story-board cards, should be formatted so that they are simple, bold, uncluttered, and proportioned to TV screen format — three units high by four units wide. The videotape, *"The World's Your Stage: A Practical Guide to Sets and Props for TV Production"* (13), one of a series by 3M Company, shows you how to create backgrounds, design sets, and wearing apparel, as well as points out problems to avoid while shooting.

Production

With script in hand, talent ready, the set and props in place, and lighting arranged, you are now ready for a walk through of the first shot. Next, a "take" is made of the first scene. When it is completed, the videotape is rewound for instant viewing. If it looks and sounds the way you had planned it, you set up the next scene. Continue this process until the lesson is completed. By following the advice in articles from *Educational & Industrial Television* (10), (4), and (8), you will achieve a more professional videotape production.

Editing

Your editing is limited by the equipment that is available to you. If you have a character generator, titles and credits can be inserted electronically while you are editing. If not, you will have videotaped your graphics as you sequenced your production or you may have shot all the graphics at one time for insertion during editing. If no editing equipment is available, then you must carefully shoot every sequence exactly as you expect to see it on the monitor. Your editing is done in your story-board, in your mind, in the camera.

Summary

All of the processes involved in scripting, talent preparation, props, settings, graphics, production, and editing can be learned by most learning assistance practitioners either through brief "how-to" articles and videotapes previously mentioned or through basic texts such as Richard Robinson's *The Video Primer* (9) or through consultation and cooperation with your campus television production specialists. When you dream up your next reading/study skills lesson to use in your center, make a videotape.

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ACADEMIC IMPROVEMENT GROUPS: AN INNOVATIVE WAY TO HELP STUDENTS BUILD BETTER STUDY HABITS

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Backgro' nd

Academic Improvement Groups (AIG's) grew out of the 4 T's study skills training program, (16) when experience and research suggested that training alone was not always enough to insure a student's success. Attitudes and habits have also been found to be important factors in academic success (2).

A group format was chosen to provide support for attitudinal and behavior change in addition to skills training (1; 17; 5). The AIG's have been kept small in number of participants, as suggested by Thoresen, (23) to allow for involvement of all members in the learning and support process.

Harren's (8) objectives for using two facilitators were expanded to include the following:

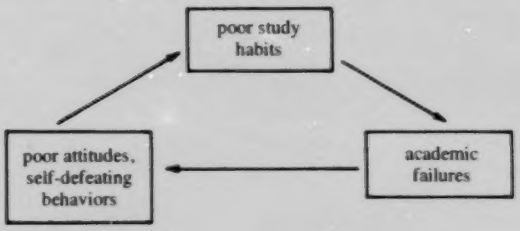
1. to better facilitate the individual's progress and the group process simultaneously:
   -one facilitator focuses directly on the individual talking or reporting,
   -the second facilitator observes the group for reactions and responses,
   -these two responsibilities are rotated as needed for continued concentration and strength in personal interaction with var.ous group members;
2. to dilute or spread authority to encourage the group members to take over the responsiblity both for group process and their own progress;
3. to provide a greater range of personal and skills resources;
4. to train new facilitators under the supervision of experienced facilitators.

Study habit development is bui't into AIG's for several reasons. Skills training seems to take less time than other kinds of counseling to get the same results. More students may be helped because less of a stigma is

attached to asking for help in reading than to asking for help in living (15). Further, research supports a positive correlation between study skills training and personality change (6; 15; 19; 21; 22), because skills training may break a defeat cycle.

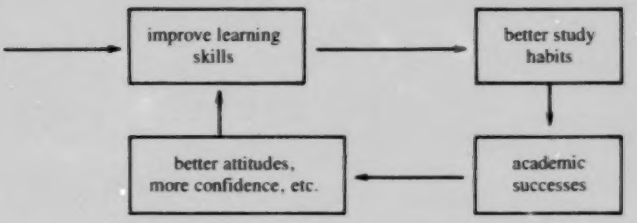
While cause and effect cannot clearly be established, the defeat cycle shown in Figure 1 seems representative. If a student has poor study habits, more failures are likely to occur. This leads to even more self-defeating behaviors such as avoidance of studying or class attendance which reinforces the negative study habit.

Figure 1
DEFEAT CYCLE



Research has long supported academic improvement as a result of study skills training (4; 9; 13; 24). New learning skills may begin and reinforce a success cycle, as shown in Figure 2.

Figure 2
SUCCESS CYCLE



Improving learning skills should lead to new and better study habits as the skills are practiced and applied in the student's academic life. Generally, students will experience more successful completion of courses. This

leads to better self-concepts and attitudes toward academic activities and reinforces study habits.

AIG's make use of certain behavior modification techniques that research has shown to be effective. Hoopes (10) indicated that goal setting increases success; and earlier, with Scoresby (11), showed that commitment to change was necessary before progress could be made in any program. Contracting allows ease of internalizing motivation and allows the student to become self-directed (12; 18). Reinforcement of successive approximations is used to help guarantee progress and to build a pattern for obtaining success (7; 14; 20).

Description

Academic Improvement Groups typically have eight to ten members and two facilitators. They meet two hours a week for seven to ten weeks. Areas students most often work on include organization and preparation for exams; motivation; concentration; and four kinds of procrastination that relate to (1) getting started studying; (2) getting organized to study; (3) having difficulty prioritizing tasks, especially those disliked; and (4) spacing completion of long-term projects.

The goals of AIG's are to help each individual focus on some academic problem area, learn techniques to develop skills to overcome the problem, recognize how these skills transfer to other problem areas, practice applying the techniques, and continue developing skills throughout the academic year.

Students are screened before joining an AIG to make certain this format will be the most effective way for them to achieve their goals. The screening interviewer has several objectives: (1) to assess the student's understanding of what at AIG is; (2) to examine the student's previous group experiences and reactions to them; (3) to assess the student's readiness and reasons for wanting to join an AIG; and (4) to explore with the student some expectations of probable outcomes of AIG participation.

Generally students whose previous group experience has been unhappy, who are in concurrent therapy, who are unable to participate in group process, who have unreasonable expectations of solving problems in areas not appropriate to an AIG, or who have "hidden agendas" such as fight authority figures, will not help other group members or themselves effectively. Students who are appropriate for AIG's are those who are open to change and committed to it, enjoy working in groups, may sometimes be shy and quiet but are ready to develop with the group's support, have specific goals clearly in mind, are willing to take risks and to be honest with themselves and others.

The evolutionary sequence of an AIG, from first meeting to last, follows a roughly three-phased pattern described in Table 1.

Groups may vary greatly in style and format but the sequence of happenings will usually follow the activities described. Paraprofessionals as

Table 1: Evolutionary Sequence of a Typical AIG

Objectives	*Tasks*	*Examples*
First Phase		
-to develop the group	-take commitments -specify problem area and quarter goal	Students are asked to pledge confidentiality, honesty, and responsibility for their own related behavior inside or outside the group.
-to learn how to contract and to become aware of self, academic tasks, and environments appropriate for studying	-make behavioral contracts with specific contingency planning to control any factors which might defeat progress	Students discover what factors interfere with studying and work out solutions to deal with them.
	-begin witnessing contracts	Students call one another after contracted activity for feedback and reinforcement.
Second Phase		
-to personalize contracts	-develop an awareness of and learn to deal with academic games	Students learn to identify games such as "Blaming Others," "Self-Defeat," "Avoidance," and "Rationalization," and to apply alternative solutions.
	-reexamine quarter goals	Change a time goal to a task goal - such as "concentrated study" over certain time periods to "preparation for finals" by a plan.
-to personalize the group	-examine group goals and fit or compromise them to members needs	If all members have mastered contracting and are progressing toward their goals, the group may change its focus to another area, such as skills training, preparation for finals, or a stating of more personal concerns of the members.
Final Phase		
-to meet goals	-last stage efficiency planning	Students do catch up/keep up contracting.
	-preparation for finals	Students design and complete special study programs.
-to terminate and provide closure	-participation in a feedback session (three-six hours long)	Feedback enables members to end the group relationship in a healthy and complete manner. Feedback provides a recap and clear statement for each student of what was accomplished and how it was done, and allows for a future plan to be made.

well as professionals may serve as facilitators. A regular seminar under the supervision of an experienced facilitator will help new facilitators obtain support and further training in group processes. Here they will have an opportunity to discuss cases and incidents occurring in each group and to work out solutions to problems.

Following participation in a group, a member may (1) continue individual work in Learning Assistance Center programs; (2) sign up for another kind of group to further diagnose problem areas and generalize solutions, or (3) may work to stabilize what has been learned without further help.

Outcomes for students participating in an AIG will probably include: better management of time, improvement of learning skills, greater self confidence, more communication with others for sharing and support, better grades in school, a better chance of attaining goals, and more satisfaction with the whole academic environment.

Summary

AIG's are designed to help students gain control over present and future study behavior. Academic and/or behavioral goals are set, and weekly contracts are used to help each member move slowly but successfully toward his/her goals.

AIG's provide support of each member's success by reinforcing previously unrecognized strengths and talents and by helping each one become aware of inappropriate behavior which is interfering with success. Inappropriate behavior is then replaced by behavior patterns that are more conducive of academic success.

Academic Improvement Groups implement innovative activities; use peer group process; employ behavioral theory; change study habits and develop personality traits important to academic success.

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MAPPING THE IDEA: A NOTETAKING SYSTEM

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The attempt to visually describe a concept is not a new phenomena; this is essentially the task of much of what we now interpret as the merely decorative elements of imagery, ranging from cave paintings to medieval illustration. Centuries ago, when a message was to be communicated to the unlettered, as in the sculpture and stained glass windows of Chartres, ideas were visually interpreted and reinforced. In a number of ways since, the visual mode has been utilized to perform rhetorical functions. Diderot, in his elegant 17th century encyclopedia illustrations, used diagrammatic drawings to demonstrate the steps in complex technological processes. Similarly, the invention of maps in the 15th and 16th centuries, claimed by Marshall McLuhan to be a change more revolutionary than any of us can imagine (7:145), visually transmitted instructions and information across language barriers. The economies of print and the need for mass instruction, combined with a suspicion that illustrations were somehow distracting (7:147), contributed to a temporary decline in visual reinforcement of information. However, in the past thirty years several influences have joined to shift our priorities. Research in special education, especially the work in remedial reading by Fernald (4), Frostig (5), and the work in the area of learning disabilities by such persons as Vallet (11) has demonstrated the importance of visual orientation to the development of successful learning capacity.

Filmmakers and the innovators of "Sesame Street" and other educational enterprises have made use of visual interpretation and reinforcement of cognitive messages. At the college level, considerable research in learning has suggested that an active learning strategy, one that involves the student in the manipulation of information, is an important preparation for academic success. Butcofsky found, among University of Delaware students, one half of the freshmen had problems related to poor notetaking habits (2). The conversion of information to be learned into visually memor-

able form or mapping, therefore, seems to be a study technique worth teaching. It is our experience at the University of Idaho that mapping information can be a regular part of study skills instruction in notetaking.

The writing of notes across a page in close, vertical lines, in imitation of print, has no functional or educational justification; the usual notes are simply a copy of the letter placement style most economical for printers. We can remind our students and ourselves that paper has a modest cost in comparison to the importance of good notes in aiding recall. The primary value in good notes is creating a memorable, quickly comprehendable record rather than using space economically. Space should serve the function of isolating, emphasizing and grouping information meaningfully.

The first step in note mapping is the overall organization of the note page. Utilizing a two-column division of notes based upon the Cornell method suggested by Palmatier (8) and advised by Pauk (9), students begin by separating a left hand topic column from the body of notes. Each new topic is separated from others by a horizontal line across the page. Any divisions of the topic into stages, levels, parts, classes or kinds are emphasized by boxing or circling the word that names the division. If the topic were the parts of the personality as interpreted by Freud, for instance, the words "ego," "id" and "superego" would be circled on the right hand column of the notes. Illustration of comparisons or contrasts can be recorded by paralleling similar kinds of information, graphing information under headings, as in the examples of "future energy sources" given in Figure 1.

Social Problems	Energy Scarcity		
Future sources of energy	coal	sun-solar	nuclear
materials availability	available cheap	abundant cheap	available costly
disadvantages	dirty polluting	limited technology	'hot' waste disposal

Figure 1 Grouping for comparison-contrast.

Processes and functions, an important part of lecture and textbook notes, benefit from mapping. Notes should not only record action by noting verbs and their objects but should visualize action whenever possible. The student should first simplify the language of the text or select the essential part of the lecturer's description, then box or draw a circle around nouns. Arrows can be used to indicate the action taking place and the direction of the action (see Figure 2).

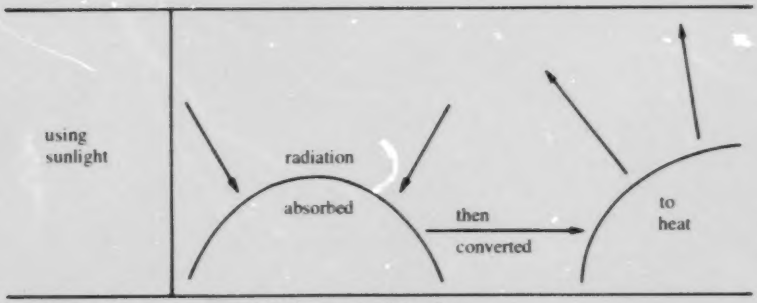

Figure 2 Describing process and function.

Mapping is especially appropriate for visualizing relationships between parts of a whole or the consequences of an action. The circled name of a hormone, directed by arrow to the boxed word "kidney," is a more memorable representation of the process than a sentence explaining the connection. Students sometimes attempt to recreate an instructor's illustration with too great an accuracy; a better strategy is to consider the illustration as the diagram of a function, and to simplify the drawing for the purpose of notes.

Mathematics and other problem courses also benefit from simple mapping applications. The student's task is to reproduce, in his or her notes, a sample problem demonstrated either in the text or in lecture. "Given" data required to work the problem is listed in the topic column; the work for each step in the calculations, in the right hand column is boxed together. The boxes act to organize all data necessary to each step and act as a memory cue to students during the test. Placing the "givens" in the left column allows the student to review by placing a scratch sheet of paper over the right hand side. The student then reviews by reworking the problem, uncovering the boxed steps as he or she proceeds, checking the accuracy. This recreates the test situation and gives the student immediate feedback on difficulties likely to be encountered.

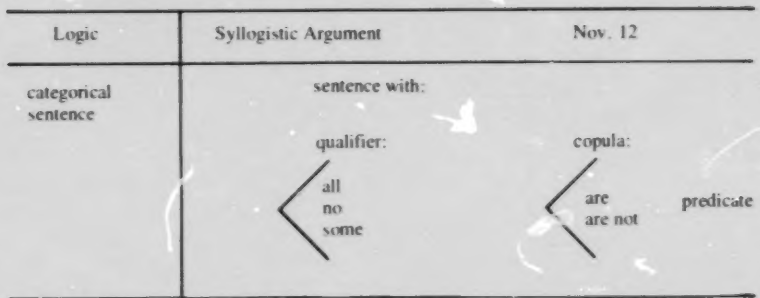

Figure 3 **Lecture note bracketing.**

The primary differences between lecture and book notes are strategies related to time. The student listening to a lecture cannot afford the time required to visualize a complex idea. In many such classes, the primary strategy of the student may be a modification of outlining — bracketing parallel items in a sentence, for example — rather than writing straight across the page (Figure 3).

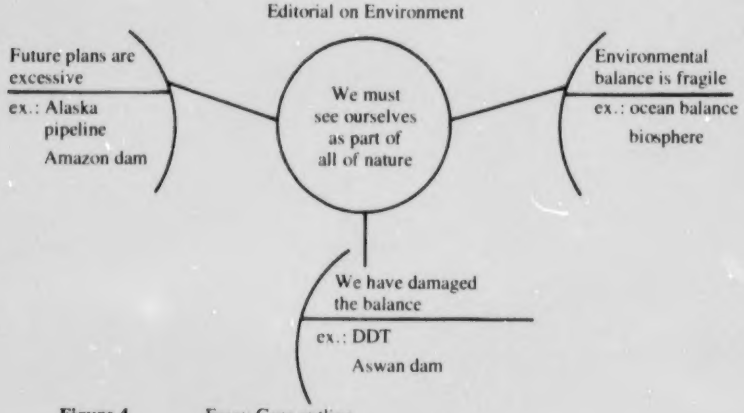

Figure 4 Essay Core outline.

Graphic illustration is an especially useful technique for dealing with complex written information. Few forms of writing are more puzzling to students than formal essays. Because the essay has a predictable structure, with one central idea and a limited number of subordinate development topics, it lends itself well to a mapping format suggested by Evelyn Wood and Hanf (6). Essentially, the map is a core outline which makes the main topic of the essay visually as well as literally central to the notes (Figure 4). Developmental topics become major radiating arms. Students add to the outline as they read; in an inductive essay the center core thesis would be added after the paragraph topics.

Details or examples illustrating each paragraph are noted briefly under the paragraph topic label. Students are able to perceive the author's development (or lack of it) and can transfer this understanding directly to outlining their own essays utilizing the same core outline format. Preparation of the essay can begin without a thesis; the student can brainstorm for examples or subordinate ideas related to a subject, group similar ideas on the radial arms, then label paragraphs. The final step would be devising a thesis statement central to all developed aspects of the subject. Essay

paragraph patterns, such as those suggested by Troyka and Nudelman (10), help students find appropriate topics for paragraphs.

Pattern ideas are especially useful when paragraph topics have been assigned without regard for the student's own interest or experience. An assigned essay on the subject that "grades are an aid to education," for instance, could be developed in a time order sequence, with elementary, secondary and college paragraph topics. The core outline helps the student order paragraphs in the rough outline stage. Similarly, weak development will be apparent in the sparsity of examples listed under each topic. A major defect in essay structure, the lack of central theme, can be easily checked by the student at this early writing stage, as each topic and example must lead directly back to the "core," or thesis statement.

The importance of organizing and mapping information into notes can hardly be over-emphasized for students. Too often, students view the learning task as one of absorbing information, or memorizing. In fact, as Ausubel has reported, learning is much more a matter of discriminating one piece of information from another, then comparing and relating these pieces of information and applying them to new situations (1). Mapping can be one step in the process of showing students how to learn.

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ENHANCEMENT OF SELF-MOTIVATION AND POSITIVE COLLEGE ATTITUDES THROUGH THE USE OF BEHAVIOR MODIFICATION

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Some of your students probably have very clear goals, can tell you exactly why they're in college, and know just what they want from school. Many others, however, are not nearly so goal oriented. They may be dissatisfied with life the way it is, and even may have vague expectations that things will get better if they go to college, but they're not really sure why or how. Others simply may be drifting. They did not come to college with a clear plan or vision of the future. They are not there because they know what they want from life and see college as a means to get it. Many, in fact, probably do not see any real connection between what they do and what happens to them in life (1).

The program described in this paper includes a series of exercises designed to help students establish clear goals for themselves and learn a means to meet those goals by making systematic changes in their own behavior. Besides setting goals and modifying their own behavior, the program has the additional objective of highlighting the link between behavior and its consequences. That is, one major emphasis of the program is a focus on the relationship between taking specific action on a day-to-day basis and obtaining life's desired outcomes. In working through the program, students are expected to experience an increased awareness that what you do in school affects what you get out of life, and this is expected to contribute to a more positive feeling about school. Thus, the program is designed to do four things:

1. assist the student in clarifying goals
2. teach the principles involved in modifying one's own behavior
3. foster a sense of self-direction and self-control
4. enhance positive attitudes toward school

The goal of this paper is to describe the program so that you can apply the exercises or devise new ones to try.

Setting general goals

The program begins with a long look inward. The first exercise is a fantasy session in which students do some daydreaming about an ideal life. In this and other exercises, after students have made their own notes, they talk about what they have written. This can be done through a conversation with you, the instructor, or with another student or two if you have them work in teams.

After dreaming about the way they want life to be, students then spend some time describing the way it really is right now. Exercise Two is designed to help each student get a clearer view of his or her own starting point.

A third exercise leads the student to think about what's involved in moving from the present to the ideal. Each person visualizes some of the stages or phases or positions that will be passed through on the way to the good life. One purpose of this exercise is to encourage the student to start thinking in terms of taking steps that will lead toward a goal rather than becoming preoccupied with either the goal itself or the disparity between the goal and present reality.

Exercises Four and Five, which conclude the first part, call for the student to list personal strengths and weaknesses. Students are encouraged to list behaviors, skills, characteristics, traits, or deficits that they think will help to create realistic pictures of themselves. Their lists tell a good deal about how they see themselves and what they would like to be different about themselves.

Defining target behaviors

After completing the first five exercises and talking them over with others, students end up with a pretty good idea of where they are and where they want to go. But the information is still too general to be very useful. Before any real action can be taken, students must translate their general life goals into specific short-term objectives — things they can start doing. The following set of six exercises is designed to move from vague goals to specific target behaviors that need to be increased or decreased.

First, students need to be coached to think in behavioral terms. In their self assessments, they often say things like "I'm lazy," or "I'm dull," or "I want to be independent and self-confident." But these terms don't give much help when it comes right down to change.

Exercise Six follows a discussion of the difference between naming a trait or using a descriptive label, and telling what such a person actually does or does not do. This exercise includes a number of words like sloppy, aggressive, bitchy, shy, and many more names of characteristics. Students write a behavior statement for each such term. That is, they tell something observable that a person with each characteristic actually does. For many students, Exercise Six is the most difficult exercise.

Exercises Seven, Eight, and Nine provide more practice in speaking and thinking in behavioral terms. These exercises, however, are less hypothetical. Instead, students write behavior statements for themselves. The trait names or characteristics which they translate into behavior terms come from their own lists of strengths, weaknesses, and goals. This procedure assures not only added practice in behavioral conceptualization, but also the first steps toward choosing target behaviors for their own self-modification projects.

Exercise Ten is one of setting priorities. Students review the goals exercises and choose those things they want most to be different. The instructor reminds them to think in terms of steps toward the goal — closer and closer approximations of where they want to be someday. At the conclusion of this exercise, students have lists of five areas in their lives that they want to change.

Exercise Eleven guides the student in making many behavior statements about each of the areas selected. Upon completion of this exercise, each student is able to make two specific lists "To meet my goal, I want to do these things more often and these things less often." Each person now has clearly defined target behaviors to increase or decrease in frequency, and knows how such specific changes relate to meeting his or her long range goals in life.

Modifying behavior

The actual behavior change begins with students selecting from their lists of target behaviors one or two to observe carefully. This is called determining the baseline of the behavior — how often does it happen now, before change. Exercise Twelve is simply a graph for keeping a record of the frequency of the selected target behaviors.

In Exercise Thirteen, students keep a record of situational variables relating to the target behaviors. That is, they observe and note where they are, who they're with, what time it is, etc. when the target behaviors occur.

These records of frequency and situational variables are kept for about a week. During that time, students complete Exercise Fourteen, a reinforcer inventory, and list numerous potential reinforcers with which they can reward themselves for behavior change.

The basic principle involved in a self-behavior modification project is to make reinforcers or rewards contingent on doing the desired behavior. For example, if a student who enjoys listening to records wishes to increase the amount of time she devotes to study, she might contract with herself and reward every hour of studying with listening to an album. Someone who enjoys wine and who wants to increase his social interactions might reward himself with wine at dinner each day that he initiated a social conversation with another person on campus.

The exercises described in Parts One and Two above provide all the

information about an individual needed to write a contract for changing behavior. I found the three guides to behavior modification listed in the reference section very helpful for writing contracts for change. Watson and Tharp's *Self-Directed Behavior* (3) provides both a very readable theoretical background and practical guidelines that will help you, the instructor. Williams and Long's *Towards a Self-Managed Life Style* (4) gives a briefer introduction to principles but many sample applications. Schmidt's *Help Yourself* (2) is probably the best for students themselves. It is short, clearly written, and gives directions, step by step.

So now you're ready. You know how to establish long-term goals, how to translate these goals into specific target behaviors, how to inventory reinforcers, and how to use them to increase or decrease target behaviors. You can help students relate small changes in the target behaviors to the larger picture of directing their own lifes. Now, help your students modify themselves!

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APPENDIX

Sample Exercises

Exercise 1: Dreaming

A person's dreams for himself or herself are usually a good place to start in setting meaningful goals. So let's take a moment now to do a little dreaming. Look into the future and dream about yourself. Use your dreams to complete the statements below.

Someday I want to . . .

Five years from now I'd like to . . .

Exercise 2: Where Are You Now?

Now let's snap back to reality for a moment, and get a firmer grasp of where you are right now. Pretend that you're going to disappear for a while and you need to hire someone to take your place. Make some notes on what

the person would have to do or not do in order to fill in for you. What would the person have to be like? How would he or she have to act?

Exercise 3: A Vision of the Flow

Now that you've done some dreaming about where you'd like to be someday, and also taken another look at what you're doing right now, let's talk about getting from here to there. Consider some of the spaces you might pass through in getting to where you want to be. Some of these spaces might be new jobs or changes in duties, but don't restrict your thinking to working from the bottom up in a hierarchy. In the circles below, make some notes about the places on the way from here to there. (On the exercise sheet is a chain of six circles for the student's notes.)

Exercise 4: Self Assessment (Part 1)

Getting from here to there requires that you have a realistic picture of yourself and your behavior. In this exercise and the one that follows, you will take a good honest look at your strengths and your weaknesses. Let's start by listing all the ways you are dissatisfied with yourself. In the spaces on the left, list the behaviors, characteristics, or deficits that you see in yourself and you don't like. Leave the spaces on the right blank for now.

I am:	I want to be:
_____	_____
_____	_____

Exercise 5: Self-Assessment (Part 2)

Being honest with yourself includes knowing your own strengths. It is your strengths that will provide a basis for working toward your goals. In the spaces below, list the behaviors, characteristics, and skills that you see in yourself and you like. Take a good look, and don't be modest.

Exercise 6: Talking Like a Behaviorist

Now that we have learned a little about stating general characteristics in behavioral terms, let's get some practice. Write a behavioral statement for each of the terms below. That is, tell something you can *observe* (see, hear, etc.) that a person with each might *do*. (The exercise includes a list of the following terms with space to write a behavior statement for each: sloppy, aggressive, independent, bitchy, mean, shy, kind, self-confident, dependent, happy, lazy, friendly, tense, irritable, distractable, gloomy, witty, morbid, dreary, funny, dull, likeable.)

Exercise 7: Talking Like a Behaviorist (Continued)

Now we'll stop talking in hypothetical terms and start talking about you. Turn back to Exercise 5, and read through your list of personal

strengths. Choose 10 of these general characteristics and list them in the numbered blanks. Then in the space provided, write a behavioral statement for each term. That is, write something that you *do* that leads you to choose this word as characteristic or descriptive of yourself.

1. _____: _____
(characteristic) (behavior statement)

_____

Exercise 8: Talking Like a Behaviorist (Continued)

Now let's do the same for the ways in which you're dissatisfied with yourself. Turn back to Exercise 4 and read through your list of characteristics that you don't like. Choose 10 of these general terms and write them in the numbered blanks. Then, in the space provided, write a behavioral statement for each.

1. _____: _____
(characteristic) (behavior statement)

_____

Exercise 9: Talking Like a Behaviorist (Continued)

Part 1. Now let's return to Exercise 4 and begin to think not only about what's not OK now, but also about how you would like to be instead. For each negative term on the left, write an opposite word on the right. For example, if you wrote "I am shy," you might write "I want to be friendly." When you have finished, come back and do Part 2 of this exercise.

Part 2. For the 10 negative terms you wrote behavioral statements for in Exercise 8, take the opposite (positive) words you have just listed and write them in the blanks below. Then, in the space provided, write a behavioral statement for each. That is, write something that you *could do* that would make this item characteristic of you.

1. _____: _____
(characteristic) (behavior statement)

_____

Exercise 10: Refining Your Goals

In this exercise you will narrow the possibilities and select the specific behaviors that you want to change. Start by assigning priorities to the characteristics on your "I want to be . . . " list in Exercise 4. Rank the five characteristics that you want to change the most. It may be helpful to look back to Exercises 1, 2, and 3, and to choose items that relate to your progressing from the space you're in now to a space you want to be in. List the five items in order with the most important first.

Exercise 11: Defining Target Behaviors

In this exercise you will translate each of your important goals into

action terms — something that you can *do* instead of just wishing for things to fall into place. Use one of these sheets for each of your important goals.

1. Write your goal here by completing the statement: "I want to be . . ."
2. What does a person who has met this goal do? Give as many examples as you can.
3. What else would you have to do before you would agree that your goal has been met?
4. What does a person who has met this goal clearly not do?
5. What other behaviors or habits would you definitely have to eliminate before you would agree that your goal has been met?
6. Now look back at the behaviors you have just listed in questions 2, 3, 4, and 5. Are they all clearly observable actions? If not, restate them in behavioral terms.
7. Complete the following statements.
   To meet my goal, I want to do these things more often:
   To meet my goal, I want to do these things less often:

Exercise 12: Observing Behavior
Exercise 13: Recording Situational Variables

These two exercises are a graph and a chart which facilitate data gathering.

Exercise 14: Taking Inventory of Your Reinforcers

1. List several activities you enjoy.
2. List several people you like to be with.
3. What do you like to do with them?
4. What is the last book you read and enjoyed?
5. What else do you like to read?
6. What do you like to watch on TV?
7. List several favorite foods and drinks.
8. What is something special a friend can do to make you feel good?
9. Where do you like to go to relax?
10. What is one thing you would do if you had the afternoon off and nothing pressing to be done?
11. If you had $20 extra money, what would you do with it?
12. What hobbies do you have?
13. What other interests do you have?
14. What is something you used to enjoy, but haven't done lately?
15. What would be a real treat for you?
16. What was something that made you feel really terrific?
17. What is something you always wanted to do, but never have tried?

DEVELOPMENT AND USE OF A TEST OF TEST-WISENESS

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Test-wiseness is the ability to correctly answer test questions on some basis other than knowledge that the questions were designed to measure. If luck and subject matter knowledge are held constant, the student high in test-wiseness will answer more items correctly than the student low in test-wiseness and will do so by employing cues in the test items or characteristics of the test taking situation (3). Therefore, some students will receive higher scores on their tests only because of an ability to take tests, which is not related to the abilities the instructor wanted to measure.

The literature on test construction offers item writing principles for foiling the test-wise answer. Unfortunately, teachers, especially on the college level, have little if any training in the application of these principles. Therefore, their tests are particularly vulnerable to the effects of test-wiseness since they tend to be informally written. It is impracticable for all teachers to learn and to apply the item writing principles which foil the test-wise response. Our best chance for minimizing the advantage of the test-wise students is to offer *all* students the opportunity to become test-wise through formal instruction in test taking.

Millman, Bishop, and Ebel (3) have compiled a thorough outline of test-wise principles in which they list 33 different test taking strategies divided into six major categories. The strategies in three of the categories can be applied in all testing situations; these include strategies for using time, avoiding errors, and considering the intent of the test maker. Applying principles in the fourth category, guessing strategies, may or may not benefit a student depending on how the test is scored. The two remaining categories are deductive reasoning and cue-using; application of these strategies is determined by the quality of the items in the test.

Development of test of test-wiseness

I set as an objective to either locate a test of test-wiseness or to develop one. The final test would have to meet five criteria: (1) the difficulty of the language used in the items had to be appropriate for use with students in high school and community colleges; (2) within reason, all students should be able to complete the test of test-wiseness within a normal academic class period of 45 to 50 minutes; (3) the test must have a reliability coefficient approaching .80; (4) the test should measure as many aspects of test-wiseness as possible within the time limit restriction; and (5) the test must be appropriate for use as both a teaching and research tool.

A search of the literature revealed tests of test-wiseness but none which met all the criteria. I decided to construct a test by compiling a pool of possible items from previously constructed tests of test-wiseness (2, 4, 5, 6). Two preliminary forms were constructed and administered to community college and high school samples. With data from these preliminary administrations, a final form of a test of test-wiseness was constructed, Form Z. Form Z has since been administered to high school, community college, and university students.

Use of Form Z

Since its development, the Form Z test of test-wiseness has been successfully used as a teaching tool in learning resource centers, learning skills workshops, test anxiety treatment groups, and high school classrooms. Form Z has also been used for research purposes (1).

Form Z is self-administered so it can be distributed one day as homework to be discussed the next day. It is also quite effective to allow the students to work on Form Z as soon as it is distributed. The items become a series of puzzles which stimulate discussion. The instructor might distribute a handout to students containing the 10 principles illustrated by the items in Form Z. Such a handout could be made from the final section of this paper or from a copy of the "Outline of Test-Wiseness Principles" by Millman et al. (3).

The answers to the items on Form Z are the framework for large group discussion after small groups of students discuss and compare individual items. The student's interests determine which items are considered and in what sequence. The instructor's primary function is to help students understand the 10 general strategies applicable to Form Z.

Following discussion of the Form Z items, a teacher could stop and consider the teaching unit to be completed and move on to a distantly related topic. On the other hand, a teacher could use the Form Z scoring exercises as a bridge into other topics on test taking. The exercise elicits topics easily extended into time use and other strategies not measured by Form Z, preparations for taking tests, and strategies for taking essay tests.

Description of Form Z

The Form Z test of test-wiseness is composed of 46 items intended to measure 10 different test-wise strategies. A KR-20 reliability coefficient of .80 was obtained from 110 eleventh-grade students.The directions for the test are simple enough to make the test self-administering and the working time is 40 minutes.

The remainder of this paper is a listing of the 10 principles of test-wiseness measured in Form Z and originally stated in the outline by Millman et al. (3). Accompanying each principle is an illustrative item from Form Z with the correct option underlined. The first five principles are deductive reasoning strategies and the second five are cue-using strategies.

Deductive reasoning strategies

(1) The first strategy is to eliminate options which are known to be incorrect and choose from among the remaining options.

Example 1: Mount Reid is a mountain peak in the

a. Klondike Range.
b. Great Plains.
c. Sahara Desert
d. Canadian Prairie.

(2) If Option *A* of an item implies the correctness of option *B* , then choose neither options *A* nor *B* or both options *A* and *B*.

Example 2: The stridule principle of arithmetic is useful when you

a. add.
b. divide.
c. sum.
d. total.

(3) If statement *A* implies the incorrectness of statement *B*, choose statement *A* or *B* but not both *A* and *B*. Items like the next example had directions to select the two or more correct options.

Example 3: At the battle of Munda

a. an airfield was captured.
b. a submarine base was occupied.
c. Napoleon was victorious.

(4) If statements *A* and *B* are known to be correct, select the option which includes both *A* and *B*.

Example 4: The heart (1) pumps blood; (2) alternately contracts and expands; (3) is marked by the suleus intercuralis; (4) possesses the Bundle of His.

a. 1
b. 2 and 4
c. 1 and 3
d. 1 and 2 and 4

(5) The last deductive reasoning strategy is to answer items based on information gathered from other items.

Example 5: The dispute between Great Britain and the United States over the boundary of Maine was settled by

a. the Treaty of Quebec.
b. the Treaty of Niagara.
c. the Webster-Ashburton Treaty.
d. the Pendleton-Scott Treaty.

Cue-using strategies

The first three cue-using strategies are subsumed under the general principle of recognizing the correct option by the way it is written differently from the incorrect options.

(1) The first way a test maker can indicate the correct option for an item is to make it longer or shorter than the incorrect options.

Example 6: William Wordsworth

a. wrote 43 novels.
b. was an early French poet.
c. was one of the earliest great and well-known English Romantic poets.
d. served under Julius Caesar.

(2) The second way of cuing the correct option is to make it more finely qualified or to make it represent a higher degree of generalization. The example just given for the above strategy is equally appropriate for this second-cue strategy.

(3) The third type of cue to the correct option is to not make it grammatically inconsistent with the stem.

Example 7: The point nearest the earth in the orbit of the moon is a

a. estival.
b. equinox.
c. perigee.
d. umbo.

(4) The fourth method is to recognize the cue for the correct option by identifying and comparing specific determiners.

Example 8: In the Tepis Islands, men

a. always live to be more than 60 years old.
b. never outlive their wives.
c. sometimes live to be over 100 years old.
d. never live to be more than 40 years old.

(5) The last strategy is to recognize a cue for the correct option in the way one of the options shares some aspect with the stem.

Example 9: The leaves of the silver-leaf polus tree

a. are arranged in pairs on the stem.
b. are large and oval shaped.
c. appear to have smooth edges.
d. appear to shine in the sun.

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RECALL VS. RECOGNITION: A STRATEGY FOR READING AND RESPONDING TO MULTIPLE CHOICE TEST ITEMS

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Many students seem to have good study habits, acquire information rather easily, and perform well in class discussions and clinical situations, and yet score lower on multiple choice tests than their general performance as students would indicate. Students in health sciences and professional schools who may be facing, for the first time, situational types of questions designed to measure application of information to practice, seem to be particularly plagued by this problem. In discussing this problem with the students as well as their instructors, one often hears evidence of feelings of frustration, lack of control and despair.

The writer found that most of these students responded to a multiple choice item by reading the stem, reading the alternatives, rereading the stem and rereading the alternatives. The more they repeated this process, the more they seemed unable to choose the correct answer. From this observation and a number of conversations with students and teachers, a strategy was developed.

Description of the strategy

Step 1. The student is asked to cover the alternatives, read the stem and generate his own answers. This technique changes the multiple choice item to a fill-in-the-blank item in which the student is urged to continue generating answers until he feels he has exhausted the pool of possible answers.

Step 2. The question is thus changed to a matching question by reading alternative "A," asking "Does this match my pool of answers?" The student then indicates his response by placing a mark to the left of the alternative: (✓) if "yes," (X) if "no," or (?) if his response is "I don't know" or "I'm not sure." Once this decision is made regarding alternative "A," the student is told to forget about "A" and proceed to "B" and repeat the process. Each

alternative is considered independently; no comparisons are to be made until this process is completed.

Step 3. Once the above steps are mastered, the student is taught to compare the alternatives on the basis of the answers he has generated and the decisions he has already made. To see how these steps apply to an item, study the following test item.

EXAMPLE

Test item:

1. Delayed speech in children can be a symptom of:
   1. hearing loss
   2. mental retardation
   3. emotional problems
   4. neurological problems

   A. 1, 2, and 3
   B. 1, 3, and 4
   C. 1 and 2
   D. All of the above

Instructor: What is the stem saying? To me it says, if I had a child who is old enough to be talking but he isn't talking, what would I begin to worry about?

Student: (Usually responds with) Some physiological impairment.

Instructor: Such as . . . (or) Tell me specific things they might check. (Push for specific answers.)

Student: His larynx or speech producing mechanisms.

Instructor: (Records this and says) Yes, go on.

Student: (May respond with such answers as hearing, brain damage, emotional problems, lack of stimulation, poor environment, learning problems, mental retardation, etc.)

Instructor: (Record each of the student's answers. At this point, do not be concerned about similar or overlapping responses. The purpose is to loosen the student up, get him to think clearly about the item and generate as many answers as possible.)

Now look at the first alternative — does it match or not match your pool of answers?

(Be sure he indicates his decisions by placing the appropriate mark to the left of the alternative. This seems like a trivial point to stress but it forces the student to make a firm decision and facilitate transferring the answer to the computer answer sheet. Under the stress of actual testing conditions, this proves to be important.)

Student: (Responds to each alternative separately.)

Instructor: (Make no comment on the student's decisions until the process is complete. Once the process is completed, ask the student to look at all the combinations and choose the answer. Then ask the student if he has any doubts about the answer he has chosen. Students usually feel confident of their answer when using this procedure.)

This and other items came from teacher made tests in the College of Nursing at the University of Kentucky and are part of a package of questions used by this writer to improve students' ability to read and think through multiple choice test items. This method has been used extensively with students in the College of Nursing for four years and seems to work equally well with students in other health fields as well as with students in general studies.

Possible theoretical explanations

Although no empirical evidence has been gathered to explain why this strategy works, the writer believes that these explanations lie in such practical areas as (1) the benefits of practice, (2) improving understanding of the stem, (3) avoiding careless errors, (4) forcing decision making in an organized manner, (5) enhancing productive thinking, (6) relieving anxiety, (7) improving self-confidence, (8) restoring students' feelings of control; and possibly in the theoretical area of information storage and retrieval systems, primarily those of (9) the interference theory of learning and (10) the different behaviors in which the brain engages when given a recognition and a recall task.

A discussion of each of these possible explanations and the related literature would be much too involved and perhaps unnecessary for the purpose of this paper; however, a brief review of three of these might be useful.

Relieves anxiety

Research by Wine (9), Doctor and Altman (4), Mandler and Watson (8), and Liebert and Morris (7) indicates that the debilitating effects of test anxiety lies in the fact that such anxiety forces the student's attention away from the task (the test item) and focuses the attention upon himself, as evidenced by such statements as "Oh, no. I'm going to fail. I should have studied more." This test-taking strategy provides a step by step procedure which enables the student to keep his attention focused on the task (or item) and away from himself, perhaps relieving this type of debilitating test anxiety or worry.

The interference theory of learning

The interference theory of learning (or forgetting) as espoused by Ausubel (3) in his popular Buddhism studies, suggests that reading a passage followed by a very similar but slightly different passage tends to result in

the information being submerged or in the second passage's inhibiting the memory of the first passage. It is possible that reading the stem of an item and its alternatives (many of which are plausible and vary only in degree of correctness) stimulates this same type of interference, whereas first covering the alternatives and generating one's own answers avoids the interference of the attractive-partially-correct-but-wrong answers.

Recall vs. recognition

Recall and recognition tasks seem to differ in the acquisition, storage and retrieval problems they present. Some behavioral psychologists believe that recall and recognition tasks differ only in their threshold values. That is they differ only in the point at which familiar stimuli differ from that which does not seem familiar. Thus behaviorists believe that more rehearsal is needed for a recall task than for a recognition task. However, information-processing theorists view recall tasks as an active search of the memory or storage system similar to that of a problem solving task. For example, consider the experiment conducted by Lindsay and Norman and reported in Anderson and Bower (2:411), in which they ask college students, "What were you doing on Monday afternoon on the third week of September two years ago?" Typical responses were:

1. Come on. How should I know? (Experimenter: Just try it anyhow.)
2. O.K. Let's see: Two years ago . . .
3. I would be in high school in Pittsburgh . . .
4. That would be my senior year.
5. Third week in September — that's just after summer — that would be the fall term . . .
6. Let me see. I think I had chemnistry lab on Mondays.
7. I don't know. I was probably in the chemistry lab . . .
8. Wait a minute — that would be the second week of school. I remember we started off with the atomic table — a big fancy chart. I thought he was crazy, trying to make us memorize that thing.
9. You know, I think I can remember sitting . . .

Memory, in this experiment, seems to be a questioning, looping activity; active, constructive, in fact reconstructive. This self-probing activity seems to be made up of passes at the original question with the second and subsequent passes being used to pick over the more relevant pieces of information retrieved in the initial pass. This seems very similar to theorem proving and general reasoning in problem solving and does not seem to be involved in recognition tasks.

Other attempts to define the difference in recall and recognition tasks include studies by Juola (5), Kintsch (6), and Anderson and Bower (2), in which they conclude that recognition performance is determined primarily by two factors: (1) familiarity — is the test stimulus familiar or not familiar? and (2) recency — how recently have I seen it? Adams (1) states that recognition is *not* superior to recall when (1) the number of alternatives is great or (2) the alternatives are highly similar. Kintsch (6) discusses the

two-stage theory of memory which assumes that recall responses are first retrieved implicitly and then recognized as appropriate or inappropriate, thus concluding that recognition is a subcategory of recall.

It seems safe to say, from this limited review of research, that recall and recognition tasks do differ, and perhaps these differences have implications for more productive retrieval patterns which could be employed by students when responding to multiple choice test items. Perhaps asking the student to first read the stem of a test item and recall a pool of possible answers, and secondly to match the given alternatives (a recognition task) to the pool of answers generated, allows the student to use the recalled alternatives as a criteria for judging the appropriateness of each alternative in the multiple-choice item.

For whatever reasons, including possibly the Hawthorne effect, the strategy seems to work. However, precautions should be taken to see that enough practice is given (usually three hours spaced over a period of two to three weeks) to (1) ensure the student's competence in the strategy, (2) increase the student's willingness to generate a number of possible answers, (3) increase the student's confidence in his ability to make decisions and (4) increase the student's speed in responding to the items.

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TEACHING STUDENTS TO FORMULATE QUESTIONS

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Our program introduces our students to the various cognitive processes and encourages them to develop and differentiate their questions and thinking skills. Our objectives are:

1. To introduce students to the fact that there are various cognitive processes or kinds of thinking,
2. To introduce students to the idea that those types of thinking are skills that can be learned,
3. To introduce students to the idea that they can analyze for themselves which thinking processes an instructor is expecting them to use and then to set about using them,
4. To encourage the student to see him/herself as an *active* learner who is consciously aware of his/her thinking processes, to improve those processes, and to engage him/herself in the thinking processes in a purposeful way,
5. To make more effective instruction in those study skills techniques such as SQ4R which require questioning as an integral component for success,
6. To make more effective student usage of those study skills techniques,
7. To facilitate students' becoming more effective learners as evidenced by course grades.

Model

Our approach is based on the work done by a number of educational researchers (1, 3 through 18, 20 through 23), particularly on work done by Benjamin Bloom in his *Taxonomy of Educational Objectives: Handbook I Cognitive Domain* (2) and Norris Sanders in *Classroom Questions* (19). Bloom's taxonomy delineates the cognitive processes involved in thinking about a body of knowledge. Sanders, basing his work on the ideas underly-

ing Bloom's *Taxonomy*, has defined seven categories of thinking that encompass intellectual objectives in education. Bloom and Sanders both point out that these cognitive processes are sequential and cumulative. When discussing the taxonomy with students, we use the analogy of a tool box. We liken the set of cognitive processes to tools in a tool box and a body of knowledge to raw material upon which the student will work with these tools. We encourage our students to choose the appropriate tools which will help them complete the required academic tasks. For example, it may not always be appropriate to choose to memorize a specific body of material. It may be more appropriate to engage in critical thinking to evaluate that material.

Teaching procedures

The goals of these procedures are 1) to develop the students' ability to think about course demands and materials from cognitive perspectives, and 2) to develop their skills in producing higher level questions. Student input and discussion form the basis of the entire teaching procedure.

Use in Adjunct Study Classes or Reading Courses:

Adjunct Study Classes provide instruction in reading, writing and study strategies as they relate to and are demanded by particular academic courses (21, 22). All students involved in an adjunct course are enrolled in the same concurrent academic course. A similar procedure could be used in a reading class or other learning assistance course where course-assigned material would be used for a unified focus.

1. Introduce usefulness of self-questioning in promoting selective attention and selective retention.
2. Elicit student questions related to the course material, discussing the potential in varying types of questions.
3. Introduce the model and its function, if appropriate to the group involved.
4. Classify the student-generated questions according to the taxonomy, developing awareness of the scheme and its overlapping categories.
5. Model various questioning strategies for students using the students' own course materials.
6. Discuss and analyze the cognitive skills required by the related academic course.
7. Consult with the faculty member of the concurrent course, particularly to check old tests and assignments, to verify student analysis of course demands.
8. Provide feedback to students on the accuracy of their perceptions of the cognitive tasks required by the course and modify discussion accordingly.
9. Discuss and analyze the students' present levels of questioning skills.
10. Formulate questions from the concurrent course material as a group,

using the verbs appropriate to the level of understanding desired as "cues" for lower and higher level questions.

11. Provide strategies for quick "automatic" ways to generate lower and higher level questions.
    Memory level:
    a. Recall questions on flashcards
    b. Lists of specialized and technical vocabulary to define
    c. List of concepts to define
    d. Diagrams to be filled in with facts
    e. Graphs and figures from texts and lectures to be relabeled
    Higher Levels: (translation, interpretation, application, analysis, synthesis, evaluation)
    a. Make a "map," or graphic outline of the lecture or chapter, then ask:
       "Why is this idea subordinate to that?"
       "Why is this idea related to that?"
       "Why did I organize the map this way?"
       "What other ways could the map have been validly organized?"
    b. Make two-dimensional charts with topic headings or chapter headings across the top and down the side. Fill in the chart and analyze the relationships that emerge:
       "What goes into this category?"
       "Why is that idea in that category?"
       "How is this idea related to that idea?"
       "What is the importance of this concept?"
    c. Make broad category headings of content topics. Using flash cards, play "categorize" with the flashcard facts and topics; then change the broad headings and play "recategorize." Analyze the different relationships among the concepts.
    d. Play the "domino theory" game, by adding or changing factors to a given situation, then assessing the potential alternative effects on the system or set of concepts.
12. Select materials and procedures for "homework" to help students practice generating the different types of questions from their course notes and readings.
13. Assess informally changes in questioning strategies after "homework" is completed.
14. Reselect materials and procedures for continued practice as "homework."
15. Form group into dyads to discuss, evaluate, and try to answer each other's questions.
16. Help the group select the best questions representing each category (recognizing the overlap of categories), and establish why they are the best.
17. Help the group explore the ramifications of the questions and the answers produced by their use.
18. Compare the groups' questioning strategies to the actual cognitive

tasks required by the concurrent course, both explicit and implicit, as verified by the adjunct class instructor with the group through analysis of the actual midterm examination or assignment.
19. Support student skill development cycle for as long as is appropriate.
20. Evaluate changes in students' use of questioning strategies.

Use in study skills classes and workshops:

Since students come to a study skills class from a wide variety of academic disciplines, the instructor must be prepared to "model" the various questioning strategies on demand using a wide variety of textbooks. Subgroups and dyads must be formed whenever possible according to academic discipline. Analysis of the demands of each individual academic course will be less thorough, since both time and the ability of the instructor to verify information about each course are limited. On the other hand, a greater interaction, and a greater "set for diversity of demands" may be created when the group focuses on a variety of different course requirements as part of its discussion. Because of these broadened concerns, the teaching cycle will require more time, more practice and instruction, before students actually incorporate the new questioning strategies into their study habits.

Use in individual tutoring/counseling:

In individual tutoring/counseling, discussion is focused on the needs and skill development of the individual student. Selection of materials, analysis and modification can address immediate and relevant student concerns and class requirements. Support on a more personal basis can be used to encourage full incorporation of varied questioning strategies into the student's study habits.

Implications for the future

As it pertains to students, the approach suggests (1) development of cognitive skills inventories to determine what cognitive tasks are demanded by specific courses and textbooks, (2) development of cognitive skills inventories to determine a student's individual strengths and weaknesses with regard to questioning strategies, and (3) development of relevant materials to help students improve specific cognitive skill areas. As it pertains to faculty, there are implications for (1) consultation with faculty, (2) training of teaching assistants, and (3) our own self-development as faculty members. As it pertains to research and future development, there are suggestions for (1) development of a work team consisting of members from the community college and four-year college systems to determine appropriate uses of the model at both levels; (2) exploration of the question: What are the effects on total recall and overall achievement if the learner answers another's questions as opposed to formulating and answering his/her own questions? (3) exploration of the question: Is providing one's own orienting direction in the form of questions a learning behavior in itself? (4)

exploration of the question: How might we refine the present taxonomic classifications so they are more usable in the study skills laboratory and the classroom? and (5) exploration of the question: Does a student's own cognitive style influence the types and levels of questions he/she asks?

The approach appears to be a useful and versatile one. Initial feedback from students employing this approach has indicated that they find that this method has helped them generate interest in course material, improve their concentration and focus their thoughts. They also report improved ability to anticipate test questions, and increased interest in knowing more about various cognitive processes and in becoming aware of their own thinking processes. Our staff members look forward with enthusiasm to future refinement of the model and its application to a variety of appropriate learning settings.

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TEACHING READING AND STUDY SKILLS TO LAW STUDENTS: THE FAIR METHOD

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Much information is being published on reading in content areas, with very little for graduate schools and nothing for law students. Vacca (17) discussed the importance of reading readiness in content areas; Bergman (4) explained how he is attempting to integrate students' reading skills instruction with the content area instruction; Bergengause and Lowenthal (3) and Cherington (6) discussed reading in nine different college subjects; Adams (1) wrote an entire book on reading in the humanities; Brown and Adams (5) wrote a book on reading in the social sciences; Judsen (7) included one chapter in his book to cover reading in many general subject areas, such as natural science, history and business; and Tomlinson and Green (16) presented an excellent paper at the 1976 Western College Reading Association conference entitled "Integrating Adjunct Reading and Study Classes with the Content Areas."

From the many articles, books, and conference talks, I see the great need for teaching reading in content areas, including law. With this encouragement and armed with a one page proposal for starting a reading and study skills course at the Brigham Young University law school, I contacted the assistant dean in charge of academics and discussed the proposal with him. He approved the course, a detailed account of which is found in Mayfield (11).

It is important to note that the course was organized, planned, and taught by a reading instructor, not a law professor. The instruction was the same as any college reading and study skills course except that the reading material used was law cases and law articles; however, some special reading methods were incorporated into the course. These will be discussed below.

During the class, the law students freely discussed the cases with each other after reading them. As they discussed the cases among themselves,

they began to discern certain common elements in most of the cases. However, as we discussed the cases in the class, we could not agree immediately on which elements were included in all cases. I discussed this with a number of law professors. They seemed surprised and impressed that one outside the law profession would have the ability to analyze law cases, and identify certain basic elements in them. If these elements could be identified and taught in the reading course, in addition to helping the students read faster and improve their comprehension, the course would then perform an even greater service. Four basic elements were identified in all law cases:

1. *Facts:* Although there are many facts in every case, facts here refers only to those relevant facts the resolution of the dispute turns on.
2. *Action:* Action is a classification such as assault and battery, negligent homocide, second degree murder, etc. Llewellyn (8) states the action as "A statement of the precise way the question has come before the court — which includes what the plaintiff wanted below, and what the defendant did about it, the judgment below, and what the trial did that is complained of."
3. *Issue:* Issue, what the court is deciding, is the most important element of a case since all other elements develop around the issue.
4. *Reasons:* In every case the court gives its reasons for why it decided as it did.

The "FAIR" reading method resulted from taking the first letter from each of the above elements. Full understanding of any case results only from seeing each of the elements and how they fit together.

Reading and study skills teachers at the college level are familiar with certain study techniques such as Robinson's (13) SQ3R method, Spache and Berg's (12) PQRST method, Staton's (15) RSVP method, and Norman's (12) OARWET method, to name a few. The FAIR method lends itself to these study techniques.

Most reading programs begin with the preview step. Adler (2) emphasized that when students preview a difficult book (as with law students previewing a case), they should read the entire book rapidly without stopping, even though they might not understand all of the concepts. Then they should go back and reread it for details (or, in a law case, read for the basic elements). Greater comprehension is thus realized in less time than results from one slow reading.

Following the preview, the students are instructed to read to answer questions. Research, such as Maxwell's study (9), point out that comprehension is higher and retention longer when reading is done to answer questions. In reading law cases, the composite question would be, "What are the facts, action, issue, and reasons in the case?"

When a law student finishes reading a case, he writes a "brief" to help him review it at a later date. Robinson's (13:32) SQ3R method states "read to answer that question, and recite the answer by jotting down cue phrases in your outline." Norman (12:55) also emphasizes writing notes, "The Write

phrase of OARWET helps you see the organization underlying what you are reading . . . and provides you with an excellent source of review material." We suggest three different ways law students might write briefs (10).

Because law students, like many undergraduates, often don't like to take the time to write briefs for every law case they study, an easier method was devised. Willmore (18), in a study done comparing underlining, outlining, reading, and the SQ3R method, found that underlining was the fastest method and that those who used underlining scored higher in tests than those who used the other three methods. With this in mind, we recommended that as law students read a case and come to a fact, action, issue, or reason, they put an "F," "A," "I," or "R," in the margin and underline a word or phrase in the case that the letter referred to. When reviewing the case at a later time, the student could move down the margin, find the letters, "F," "A," "I," or "R," and read the part that was underlined without having to reread the entire case. This way many cases could be reviewed in a very short time.

Each step of the common study technique is being accomplished: beginning with the initial preview, reading to answer questions, writing a brief, and concluding with the final review.

Another interesting aspect of the course is that it offers one semester-hour credit. Originally, since the course was a freshman course, the law students couldn't use the credit. But students who took the experimental course were so impressed with their reading and studying progress that they requested the law school curriculum committee to investigate the course for possible credit toward the Juris Doctors (J.D.) degree. The committee approved the course for credit toward the J.D. degree.

We believe that any college reading and study skills program could teach a reading course for law students using the same reading methods used in the reading program, but using law cases and law articles.

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ECOLOGICAL STRIP MINING: STRATEGIES TO HELP STUDENTS DIG FOR MEANING

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Little doubt exists, I think, among teachers of reading, composition, or study skills about the importance of paragraph comprehension skills. Royce Adams, in the *How to Read the* series (1), devotes major sections to paragraph development patterns used in each content area (i.e., narration and description in humanities; process and classification in sciences; comparison/contrast and cause/effect in social sciences). Walter Pauk (9) advocates "the paragraph way," recognizing main ideas, supporting details, and organizational patterns, as a primary method of improving reading comprehension. In fact, most composition handbooks and readers devote some section(s) to explaining various patterns of development used in writing. Yet, Williams and Stevens (13:513) note, "textbook publishers and classroom teachers tend to minimize instruction in this area."

Reasons for this minimal instruction are varied. Most teachers do not administer formal tests that diagnose paragraph comprehension strengths and weaknesses. Since they do not know whether students lack specific paragraph comprehension skills, little class time is spent on paragraph instruction. Especially during college and the last two years of high school, teachers frequently assume students already have adequate knowledge. If paragraph comprehension is taught at all, instruction is often passive, with teachers relying on workbook exercises or programmed texts for student practice. On the other hand, teachers who actively try to teach paragraph comprehension are often greeted with students' jeers: "Not topic sentences again. I've studied these for six years. I already know this!" However, many students seem to lack basic paragraph knowledge necessary for thorough comprehension.

During the last three years (after our reading and study skills classes became credit classes), I have pretested my students in several areas including paragraph comprehension and underlining techniques (11). Fifty-three percent of the students showed weaknesses in both paragraph comprehen-

sion and underlining techniques; seventy-five percent of the students showed weaknesses in either paragraph comprehension, underlining, or both. Twenty-five percent of the students were fully capable in both areas tested.

The University of Idaho Reading and Study Skills Classes do not attract only below-average or probationary students; we have a cross-section of students including above-average pre-dental, pre-law and pre-medical students, average undergraduates in many major fields as well as below-average students. Clearly, I [as well as Williams and Stevens (13:516)] have found that many students need specific paragraph instruction.

Possibly, paragraph comprehension instruction is to reading and writing as grammar instruction is to writing. P. M. Goodhall (3), in an address at an Idaho writing conference, noted that teachers often teach grammar years before students are conceptually ready for it. Then, by the time the students are capable of understanding and utilizing correct grammar, they are so tired of terminology that they don't master grammar, and their writing doesn't improve. For many students, a similar situation exists with paragraph comprehension. By the time they realize a need for paragraph comprehension in their own reading and writing, they are so tired of terminology that they won't master the skills. Maybe educators need to reexamine the ages at which paragraph comprehension skills are taught, or maybe teachers just need some new approaches. Because I am convinced that paragraph comprehension skills need active, palatable classroom instruction, I began to devise strategies employing different terminology, math equations, and a circular outlining technique. Furthermore, since I found students with high scores in paragraph comprehension also demonstrated effective textbook underlining techniques, I began to teach marginal notetaking and underlining skills, utilizing paragraph comprehension techniques.

Different terminology

While teaching paragraph comprehension, I have found, as I have in teaching study skills, that I must synthesize many people's ideas and various textbook materials to come up with different strategies. Instead of using traditional terms such as *topic sentences*, *supporting details*, and *transition devices*, I began experimenting with Robert M. Gorrell's commitment-response model (4,6). In this model, the author of a paragraph commits himself to writing about a particular subject in a particular way. The responses to that commitment are the supporting details. Because students can verify whether or not a detail is actually a response to that particular commitment, they discover the relevant and irrelevant details themselves. In part an offshoot of this process, students often discover that much textbook material is not particularly well-organized. That published writers also have difficulty with organization seems to encourage many of my students who are having the same difficulty.

In addition to commitment-response, students learn various patterns of responses (7). I use eight major patterns since additional patterns discussed in other books can be connected to these eight in some way. Furthermore, I teach students to recognize red flag words, what Pauk calls the "pivotal words" (9), and to associate them with the pattern(s) being used by an author. Even though red flag words are often overlooked in class instruction, their importance is well-documented. Dennis Rodgers (12), after researching the high correlation between knowledge of connectives and high performance in reading and writing, studied the connectives used in textbooks (grades 6-12) to discover which connectives were used most often in particular content areas. Rodgers concluded that "awareness of connectives is vital to intelligent reading..." (12:466), and signal words should be taught directly. In an NCTE report (10) on teaching vocabulary, the committee concluded that the teaching of signal words was inadequate. It strongly recommended that experimental studies be conducted on the direct teaching of such forms.

Circular outlining and math equations

Finally, to help students visualize paragraph meaning, I use a circular outlining technique, based on mapping strategies (2,5). When students discover the commitment of a paragraph, they write it in the center of a circle. As they discover and test the responses, they connect them to the circle, linked like the radii of a circle but without a circumference. Then by using red flag words whenever possible, students determine the major patterns used in developing the responses. The pattern name (such as *example, comparison, result* etc.) is written on the radius. Because traditional treatments of paragraph structure [like that of Horace Judson (8)], mention five major types, all dependent on placement of (or lack of) a topic sentence, I use some mathematical equations to help students learn these possible — though not inclusive — placements of commitments in a paragraph. The symbol for commitment is *Co;* the symbol for responses is *Re.* For paragraph types then,

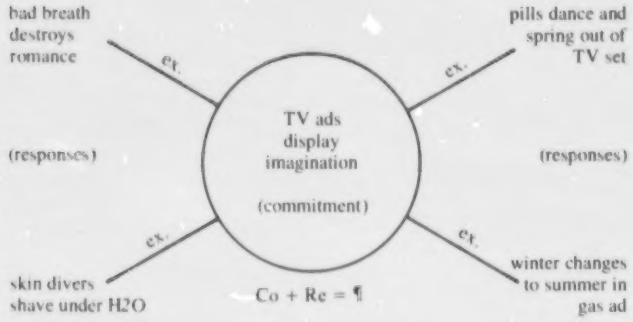
$Co + Re = ¶$
$Co + Re + Co = ¶$
$Re + Co = ¶$

$Co + Re + Co + Re = ¶$
$Re = ¶$ (lack of a stated commitment)

Here is a typical paragraph that students initially use to practice this CORE method of paragraph comprehension.

Critics often complain that television programs lack imagination. However, when it comes to advertising, television displays imaginative powers that are seemingly boundless. For instance, pills dance around the screen, drop through trap doors into mechanical stomachs, and all but spring out of the set into your living room. Winter changes to summer to illustrate the virtues of a particular brand of gasoline; skin divers shave underwater. And,

in another example, a whiff of bad breath makes romance fade away right before your eyes. (Tactics in Reading II, p. 76)



Applications to marginal notetaking and underlining

Although the skills of marginal notetaking and underlining have been more than adequately explained and illustrated by Pauk (9) and Adams (1), I have not read any accounts of ways to teach students how to master the skills. I found, as have many other study skills instructors, that students underline too much; but I had difficulty bridging "too much" and "just right." After trying several approaches, I have discovered paragraph comprehension techniques bridge the gap adequately. After students can discover paragraph commitments, responses, and patterns, they are ready to learn a two-step process in marginal notetaking and underlining that makes reciting and reviewing effective.

First, students underline commitments completely, circle only key words that reflect responses (supporting details), and place a rectangle around red flag words. Next, they determine and then write the pattern of responses in the margin beside the paragraphs.

Today, as in the 1940's, American soldiers are engaged in battle. Great differences exist, however, between World War II and the conflict in Vietnam. In the first place, World War II was a declared war. The Vietnamese encounter, on the other hand, has never been officially declared as a war by Congress, nor is it ever likely to be. In the second place, World War II involved many countries and

included numerous theaters of battle in Europe, North Africa, Asia, and the Pacific. The present conflict, in contrast, is a relatively contained encounter, involving mainly American and Vietnamese troops within the confines of Vietnam. (*From Paragraph to Theme*, p. 49)

Refining and mastering this process take different students variable amounts of time. At first, this technique is practiced with paragraphs I reproduce for the entire class; however, it is eventually applied in the students' own textbooks.

The second step alters the first a little. Students find the commitment and, using red flag words, determine the pattern of responses. While in the previous step they underlined the commitment and placed rectangles around red flag words, this time they merely find them. Next, the students use this information and combine the commitment and the pattern of responses into a single, brief marginal note. Then they underline the key words or phrases that reflect the responses (supporting details). Now they have underlined minimally yet relevantly. Finally, they count the number of underlined responses and write that number in the margin in parenthesis under the commitment.

Today, as in the 1940's, American soldiers are engaged in battle. Great differences exist, however, between World War II and the conflict in Vietnam. In the first place, World War II was a declared war. The Vietnamese encounter, on the other hand, has never been officially declared as war by Congress, nor is it ever likely to be. In the second place, World War II involved many countries and included numerous theaters of battle in Europe, North Africa, Asia, and the Pacific. The present conflict, in contrast, is a relatively contained encounter, involving mainly American and Vietnamese troops within the confines of Vietnam.

Consistent with Pauk's reciting step (9) in studying indexed lecture notes, this method allows students to cover up the underlined material yet recite the hidden responses prompted by the marginal note. Lastly, for many students, this technique saves time since they are writing marginal notes and underlining instead of writing out book notes. The method still promotes active participation of students since they have to think about what they have read before they can write an effective marginal note and underline meaningfully.

Implications

Because most teachers have avoided teaching paragraph comprehension skills, this CORE strategy offers a method for teaching them in any

class. Even more important, mastery of these skills can help students learn to mark textbooks and to write effective paragraphs and essay exam answers. Students in my study skills classes practice writing essay exam answers using circular outlining instead of traditional outlining. They can check themselves to see that their answers contain a commitment and relevant responses. It has been a popular method, especially with minority students and adults who have often been dissatisfied with the exactness of numbering in traditional outlining.

As proof of the method, I offer one testimonial. After receiving a first semester grade point of 1.66, a freshman entered my second semester study skills class. He had also dropped English 103 (freshman comp) first semester because he could not write an organized paragraph. During second semester mid-terms, he told me he had been trying unsuccessfully to underline his introductory sociology text; he was flunking the course. In class, we began working on the CORE strategy and applying the skills to marginal notetaking and underlining. He enthusiastically applied everything to the sociology textbook. He made up the exams he had skipped earlier in the semester, wrote the required research paper, and took the final exam. He received a B for the course. At the same time, he had been practicing writing essay exam answers in the study skills class. Just before the final exam, he told me he thought he could finally take freshman comp and pass it. His grade point for all second semester courses averaged a 3.00.

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PREDICTING READING ABILITY THROUGH LANGUAGE EXPERIENCE: THE LAZDOWSKI SAMPLE SURVEY (LSS)

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A major concern in education today is in the use of printed instructional materials which are inappropriate for the reading ability level of the student. In order to provide suitable instruction in all academic areas, teachers need a quick and reliable way to determine their students' reading grade levels. Traditionally, the classroom teacher has had to rely on previously administered standardized tests as the basis for assigning appropriate instructional materials. Unfortunately, standardized reading tests are not administered at each grade level and current test data are thus not always available for use by the classroom teacher.

The feasibility of using writing samples of students as means of assessing their reading ability levels was examined in a dissertational study by Lazdowski (8). Three hundred thirty-eight writing samples were collected from junior high, senior high and college students, with measured reading ability levels from grades three to fourteen, in El Paso, Texas, and Las Cruces, New Mexico.

Subject

Neither academic grade levels nor chronological ages of the sample writers were considered. Subjects were from grades seven through thirteen (college freshman). Reading ability ranged from less than third grade to beyond grade fourteen. The writing samples were categorized according to reading levels without regard to academic grade levels or ages of the subjects. Subjects came from a diversified background both economically and culturally. These factors were not considered in either the selection or categorization.

Procedure

The following readability formulas were applied to each of the writing samples.

1. Dale-Chall Readability Formula (1)
2. Farley Readability Formula (3)
3. Flesch Reading Ease Formula (4)
4. Fry Readability Graph (5)
5. Gunning Fogg Index (6)
6. Lorge Readability Formula (10)
7. Spache Readability Formula (11)
8. Sticht Readabilty Index, FORCAST (12)

One hundred twenty of the samples, selected randomly, were further analyzed according to the following criteria in an effort to identify a correspondence between writing and reading achievement:

1. Vocabulary load, including difficulty and diversity.
2. Sentence structure, as indicated by the percentage of simple sentences and by the average length in terms of letters, syllables and words.
3. Density of ideas, as indicated both by the number of different words and the total number of content words used. (2)
4. Syntactical complexity in accordance with the Developmental Sentence Scoring criteria developed by Lee and Canter. (9)
5. The ratio of T-Units (Thought Units) to the total number of words and syllables.

The T-Unit, as it is used here, refers to a measuring device modified by the author from an eclectic compilation of several research studies. T-Units are isolated ideas which are contained in all written material. T-Units, in contrast with sentences, phrases and clauses, are not bound by punctuation rules of any kind. They may be manifested in a single word, expression, phrase, clause, a complete sentence, or possibly an entire paragraph. Two distinct values of T-Units to the total number of words were computed. For example, in the following sentence, there is a total of three T-Units:

I would like to go to Rome to see the Coliseum.

I would like (1)
to go to Rome (2)
to see the Coliseum (3)

Eleven words are contained in the sentence. The ratios are the ratio of T-Units to the sentence, which is 3/1 or 3.0, and the ratio of T-Units to the total number of words, which is 3/11 or .273.

An average sentence ratio was computed for each of the samples. For the second computation, the number of T-Units to the total number of words in each sample was used. The results are listed in the following table.

Table 1
T-UNIT RATIOS

Grade	T-Unit/Sentence	T-Unit/Words
5	3.5	.274
6	3.2	.195
7	3.0	.185
8	2.8	.175
9	2.6	.166
10	2.4	.154
11	2.2	.144
12	2.0	.130
13	1.8	.122

The figures represent mean scores computed at each reading ability category for the writing samples used in the study. Note that as the reading ability grade level is increased, both T-Unit ratios decreased. The inverse relationship is logical in that more complex sentences use more words to express fewer thoughts.

As a further illustration of how the T-Unit ratio serves in the identification of the reading grade level of the sample writer, the sentence used in the previous example may be used with the values taken from the table. The sample writer's actual reading grade level was predetermined to be grade level 5.5. The sentence ratio of 3.0 corresponds to approximately grade 7 in the table. The word ratio of .273 indicates approximately grade 5 (.275 in the table). Using both of the ratios together would indicate a predicted reading ability grade level of 5-7, which is fairly close to the actual reading ability grade level of this particular sample writer.

Applications and findings

The Lazdowski Sample Survey (LSS) was developed by means of a step-wise multiple regression equation using the most likely predictors found in both the readibility formulas and the syntactical analysis. The derived formula, using those factors found to be most reliable, is as follows:

$$P.R.L. = 2.34 + (SYLL) + .2(ASL) + \frac{(PSW)}{S}$$

Where: P.R.L. = Predicted reading ability grade level
SYLL = Total number of syllables (as they are pronounced) in the passage of at least fifty words.
T-Units = Tally of the number of individual thought units in the passage

ASL = Average sentence length in words
PSW = All word tokens (words, non-words, numerals, dates, abbreviations, acronyms (as they are pronounced) having three or more syllables.
S = Number of sentences in the passage.

The LSS accurately predicted the reading ability grade levels of the subjects within one grade level in sixty-five percent of the cases checked (N = 150) and within two grade levels in ninety-nine percent of the cases.

The LSS is an instrument which may be used in a variety of situations both simply and effectively. The following ten-step procedure follows the application.

1. Tally the T-Units
2. Count the number of syllables as they are pronounced
3. Divide the results of step 2 by step 1
4. Multiply the results of step 3 by .25
5. Find the average sentence length (ASL)
   a. Count the total number of word tokens (word tokens include all words, non-words, acronyms, abbreviations, numerals, dates, etc.)
   b. Count the number of sentences
   c. Divide step 5a by step 5b
6. Multiply the results of 5c by .2
7. Count the number of word tokens having three or more syllables as they are pronounced
8. Divide the results of step 7 by step 5b
9. Multily the results of step 8 by 2.5
10. Add together the results of step 4, step 6 and step 9 with the constant 2.34. The sum is the predicted reading ability grade level of the sample writer (PRL).

Word count measures proved to be the most appropriate devices for determining complexity. The average length of words in terms of letters and syllables contrasted greatly at the two extremes (high and low reading ability). Only slight length changes were found, however, between adjacent grade levels. An increase in the use of difficult words (those having three or more syllables) was obvious as the reading ability levels increased even though this did not occur sequentially.

The conclusions reached in this study portend the beginning of what could be an expanding field of research and study. The paucity of related research found in this area seems to indicate an endemic need to investigate this relationship more thoroughly. If a relationship such as this can be affirmed, then what of similar propinquities between other communication skill pairs? Is there, perhaps, a homology existing among all four — reading, writing, speaking, and listening?

Determining reading ability of an individual through an analysis of his writing capacity is, by itself, significantly novel. Both are internally self-generated skills whose relationship is not derived nor based upon some externally devised norms, but rather on the language and experience of the individual.

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CLOZE REVISITED

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This paper is concerned with some very old problems — readiness, reading skills instruction, integration between disciplines — and with exploring the use of "Cloze Two" as one way of addressing those problems and "personalizing learning systems' ecologies and strategies." A sample Cloze Two is appended.

Cloze and Cloze Two

Cloze and Cloze Two are prepared alike; both use nth word deletions. They are also completed alike since both call for closure to be made with the words the author used in the original text. The essential differences between the two are the vocabulary study preceding Cloze Two, clues for closure given learners, and the constraints placed upon the selection of exercise material.

Selection of exercise material

One purpose of reading instruction in colleges is to enable learners to effectively use textbooks as instructional tools. Textbooks provide the best source of exercise material.

Cloze Two uses textbook material in the preparation of practice exercises. Important concepts presented in introductory textbooks for college courses are isolated, the vocabulary used to present those concepts is identified, and summaries of the concepts, in the style and at the language level of the author, are prepared. The exercises are grouped in sets, and in an order which maintains the integrity of the presentation of concepts as given in course outlines.

Word study

With a vocabulary which matches that of the author of a cloze exercise, the learner is able to effect closure; without that vocabulary, the learner suffers a crisis of closure. If the learner has an inadequate vocabulary, and most students in reading improvement classes do, there is a demonstrated need for word study.

Cloze Two includes word study within a structure that helps learners link words and their definitions to the cloze exercise. Words selected for study include all technical terms and all sophisticated words used in the definitions and the cloze exercise. All terms in the word study to be used in the exercise and all closure blanks in the exercise using those terms are asterisked.

Strategy for using Cloze Two

Learners as a group complete a sample exercise with the instructor. Words and phrases are studied one by one, and special notice is taken of why but one definition is given, and any apparent difference with other denotations or connotations of the word or phrase. Sentences using each of the words or phrases as defined are developed. The Cloze Two exercise is then completed. Learners are encouraged first to search for those blanks which would seem to require service words for closure to develop additional continuity in the text, then to search for those blanks using vocabulary study words, and third to fill in all remaining blanks. Learners are encouraged to freely refer to the word study page to recognize that for some blanks a number of responses have similar privileges of occurence and to develop strategies for coping with such situations. The final step is a comparison of the exercise as completed by the class group with the original text, and discussion of processing strategies leading to correct closures. If needed, a second or even third sample exercise is used with the class group.

Once readiness for using Cloze Two exercises has been established, learners are offered a choice of packets of exercises. Learners are free to choose a packet related to their major, a course in which they are presently enrolled, or a course in which they never plan to enroll but would like to know more about. They are encouraged to tackle the exercises first alone, and then in groups, before referring to the available answer key. The final activity is either an individual or group critique of the processing strategies used for each exercise.

Background and implications of Cloze Two

Presentation of print cannot be delayed until college students are "ready." Print is a part of content area assignments for the course in which

they are enrolled. One function of Cloze Two is the "ready" students, to serve as an advance organizer for the printed page and concepts of content area reading assignments and to do so in a systematic and sequential method.

A second function of Close Two is to deliberately and purposely direct vocabulary study in a way that will contribute toward developing a correspondence of reading level between students and textbook authors. Usable vocabulary is not acquired by artificial explanation and memorization of word lists but by giving students an opportunity to acquire them in, by, and through their functional contexts. (7)

Basic skills instruction including cognitive mapping is essential if college students are to acquire, code, store, recall and decode information. A second purpose of Cloze Two is to further that instruction. The initial group work allows for miscue analysis, a diagnostic tool for the instructor. The exercises themselves, together with any supplemental material selected by the instructor from miscue analysis, will move learners beyond the initial skill acquisition stage in which poor readers exist to a type of sequential translation reading where adaptative strategies and "cummulative comprehension" (3) operates.

Learning essentially consists of a growth of knowledge. The college experience is directed toward in-depth study in vocational and non-vocational areas; it is not directed toward the reading box approach of a variety of subjects touched upon lightly followed by a few relevant or irrelevant comprehension questions. The third purpose of the Cloze Two is to integrate disciplines by using their content to improve the reading skills of learners, to teach for transfer directly and thereby to contribute in-depth learning experiences for college students.

Cloze Two example

Cloze Two . . . "How a simple engine operates"
Before you turn this page . . . know these words!

accomplished	done, completed
bearing	a device that supports, guides and reduces friction between fixed and moving parts
*camshaft	a shaft with bumps called lobes used to run the valves
combustion	process of burning
combustion chamber	area above the piston
compresses	squeezes together to make smaller
crankshaft	shaft running the length of an engine supported by the main bearings
*cylinder	hole in the block for the piston
*drawn	pulled as in *drawn down* or *pulled up*
*exhaust	let out air or steam from an engine at the end of every working stroke of the piston

energy ..... the ability to do work
expanding ..... spreading out, becoming bigger
explodes ..... breaks out or apart suddenly
flywheel ..... wheel attached to the crankshaft to keep it running smoothly. A flywheel may also be used with a starter or a clutch.
friction ..... resistance to movement between any two objects when placed in contact with each other. Friction causes both wear and heat.
ignited ..... lit or caused to start burning
*mixture ..... combination of two or more things put together
*operate ..... work, run, function as an engine
*piston ..... a round plug, open at one end, that slides up and down in the cylinder
process ..... a series of actions, changes or steps accomplished one after the other
resistance ..... work against, fight off
rotates ..... turns or spins on an axis
shaft ..... a long cylindrical bar that rotates and transmits power
*stroke ..... distance the piston moves
transmits ..... sends from one place to another
valve ..... device, or a thing, used to either open or close an opening

An engine is a set of parts put together in a specific, or definite, order. Each part is needed (1)_____ the engine is to (2)*_____, or run, if it (3)_____ to change energy from (4)_____ burning fuel such as (5)_____ into a useful form. (6)_____ is how a simple (7)_____ operates:

The piston is (8)*_____ down by the crankshaft. (9)_____ it starts down, the (10)*_____ opens the intake valve (11)_____ a mixture of gasoline (12)_____ air is drawn into (13)_____ cylinder.

When the piston (14)_____ the bottom of its (15)*_____, the intake valve closes, (16)_____ the crankshaft forces the (17)*_____ back through the (18)*_____. This compresses the air-fuel (19)*_____ in the combustion chamber.

(20)_____ the piston nears the (21)_____ of the compression stroke, (22)_____ air-fuel mixture is ignited (23)_____ a spark from the (24)_____ plug. This explodes the (25)*_____, and the pressure of (26)_____ rapidly expanding gas drives (27)_____ piston down through the (28)*_____. Both valves are closed (29)_____ this firing stroke.

After (30)_____ the bottom of the (31)_____ stroke, the exhause-valve opens, (32)_____ the spinning crankshaft forces (33)_____ piston up through the (34)*_____ once more. This time (35)_____ the burned gases are (36)_____, or exhausted, from the (37)*_____ and combustion chamber.

When (38)_____piston reaches the top (39)_____ the exhause stroke, the (40)*_____-valve closes and the (41)_____ opens. The piston is (42)*_____ down on another intake (43)*_____.

Once the cylinder has (44)_____, the heavy flywheel will (45)_____ the crankshaft spinning long (46)_____ to go through the (47)*_____, intake and compression strokes. (48)_____ will then receive power (49)_____ another firing

stroke. This cycle is repeated over and over, and thus the engine will run on its own power.

Answers for "How a simple engine operates"

1. if	14. reaches	27. the	*40. exhaust
*2. operate	*15. stroke	*28. cylinder	41. intake
3. is	16. and	29. during	*42. drawn
4. a	*17. piston	30. reaching	*43. stroke
5. gasoline	*18. cylinder	31. firing	44. fired
6. Here	*19. mixture	32. and	45. keep
7. engine	20. As	33. the	46. enough
*8. drawn	21. top	*34. cylinder	*47. exhaust
9. As	22. the	35. all	48. It
*10. camshaft	23. by	36. driven	49. from
11. and	24. spark	*37. cylinder	
12. and	*25. mixture	38. the	
13. the	26. .he	39. of	

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GLASS ANALYSIS: AN EFFECTIVE WORD RECOGNITION TOOL FOR READING DISABLED ADULTS

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Background

There is a need for special word recognition techniques to meet the needs of learning disabled and other severely disabled readers. Most traditional materials presenting basic decoding skills are in a childish format or tend to give poor results because of resistance on the part of the learner who has failed on similar material in the past. The Glass Analysis program appears to have great potential for vocabulary growth and word recognition skill acquisition. The reader is referred to *Teaching Decoding as Separate from Reading* by Gerald Glass (Garden City, N.Y.; Adelphi University Press; 1973) for further information.

Purpose and procedures

The purpose of Glass Analysis is to improve students' skills of decoding through a study of the sounds made by various word elements. This is accomplished by following a prescribed routine in which word recognition is removed from a situation where comprehension must also be involved. The premise is that if a person can first decode, then other reading skills can more efficiently and effectively be taught. The program teaches a more natural approach to word recognition than the learning of sets of rules and isolated sounds taught in most programs.

A group of words is presented in which the same word element is seen in various positions in words without the sound being significantly changed; for example, "at" in b*at*, spl*at*tered, and *at*tic. The correct pronunciation of the word is given and the student is asked to repeat the word. The following pattern is followed in presenting each word: "The word is *bat*, what is the word? In the word *bat*, what letter makes the 'b' sound? In the

word *bat*, what letters make the 'at' sound? In the word *bat*, what sound does the letter 'b' make? In the word *bat*, what sound do the letters 'at' make? In the word *bat*, if I take off the letter 'b' what sound is left? What is the whole word?" Follow-up activities such as oral reading, games, seatwork, and similar activities will extend the learning.

Implications

Glass Analysis will be a useful technique for teachers of adult reading programs because:

1. Illiterate, functionally illiterate, and learning disabled students successfully acquire needed word recognition skills.
2. The technique can be used for individuals or small groups.
3. The system is applicable to both college and other adult education programs.
4. Glass Analysis uses different modalities in teaching word recognition and can involve visual, auditory, tactile and kinesthetic modalities in the learning process.
5. The rapid acquisition of reading vocabulary and word recognition skills which most students experience is highly motivating.

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ABSTRACT

READING ECOLOGY AND INSTRUCTIONAL STRATEGIES FOR INTERNATIONAL STUDENTS

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Background

The need for an intensive reading program became paramount in the Fall of 1976 when it was discovered that 1011 students from 43 different countries were admitted to Texas Southern University. The majority of these students evidenced difficulty in reading materials written in standard American English. In view of this fact, instructional strategies were revised to emphasize reading as a language-related process that requires understanding patterns of structure and meaning. Competency-based instructional modules emphasizing linguistic principles were constructed and implemented.

Procedures

Students are taught in small seminars followed by individualized competency-based modules. First, students are taught basic patterns of English and given practice in oral reading exercises before they are introduced to the modules which require silent reading. The oral reading and silent reading exercises are followed by questioning in order to make sure the passages are fully understood. The materials increase in levels of difficulty and stages of linguistic principles.

Students develop the following competencies through the satisfactory completion of the seven modules designed for the course: 1. effective communication skills; 2. analytical skills; 3. decision making and problem-solving skills; 4. awareness and understanding of the structure and history of the social and political institutions; 5. understanding, knowledge, and responsiveness of the natural and/or physical sciences; 6. understanding of

arts and humanities and the contributions they make to the technological base; 7. awareness and understanding of the similarities and differences of ethnic groups; 8. awareness and knowledge of behavior patterns which affect personal and social relations.

Recommendations

The following recommendations are offered in the use of developmental competency-based modules for international students:

1. The reading materials must be simplified.
2. The reading materials must be written within the linguistic range of the students at varying structural levels of the English language.
3. Introduce the use of the English dictionary after the students have learned how to relate meaning to context.
4. Provide and insist on intensive practice in discovering meaning from context.
5. Always encourage the students to read extensively.

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COGNITIVE LEARNING STYLE AND THE BRAIN: SOME IMPLICATIONS FOR EDUCATION

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Two Ways of Knowing In Man

The evidence that there are two ways of knowing has been available to mankind since the dawn of recorded history. Man has long been confronted with the existence of two different ways of knowing through his myths, through his science and religion, and through his own behavior. Today, the term "cognitive style" is often used to describe these two ways of knowing in man. Cognitive style has been defined by Witkin (13) as the characteristic self-consistent modes of functioning found pervasively throughout an individual's cognitive (i.e., perceptual and intellectual) and psychological activities.

Cognitive style distinctions have been given many names depending on the author's favorite dichotomy: "left-brained" vs. "right-brained," "rational" vs. "instinctive," "analytic" vs. "relational," "sharpening" vs. "leveling," "field-independent" vs. "field-dependent," "deductive" vs. "inductive."

Cultural hemisphericity

It is not only in the Western hemisphere that we find this duality in man. Ornstein (10) has advanced the theory that the globe man inhabits has two hemispheres, each with a separate consciousness. The Western Hemisphere is dominated by left-brained linear/analytic mode of consciousness, while the Eastern Hemisphere seems to prefer a "right-brained" holistic and intuitive mode of consciousness.

There is no suggestion that one way of knowing is superior to another, but in the West, the evidence is that the left-brain/field-independent/analytic style is favored because of its compatibility with the demands of our highly technological society. In fact, society and the school's stress on reading, writing, and arithmetic has, I believe, educated the left hemi-

sphere, while neglecting the intuitive, imaginative, artistic and perceptual attributes of the right hemisphere. To make matters worse this left-brained attitude tends to select out for failure those with a "right-brain" cognitive style preference.

Educators (3, 6) have suggested that the reason that so many "new students" are low achievers is due to the cultural shock of being "right-brained kids in left-brained schools." The schools, and their largely middle-class teachers, use tests and teaching styles that are highly analytic and have made little effort to either adapt these procedures for those with a right-brain cognitive style or to discover ways of teaching "right-brain" students to make a cognitive shift and start developing the linear analytic functions of the left brain. This lack of awareness (or concern) in the schools is also demonstrated by the fact that most of the screening and assessment instruments, including the so-called "culture-free" non-verbal tests of IQ or achievement, are heavily loaded with items reflecting field-independence demands.

Cognitive style and the two hemispheres of the brain

There might be a connection between these two ways of knowing and the fact that man has two highly individualized hemispheres which are functionally asymetrical. The evidence has been accumulating, particularly over the last ten years, that these two cognitive styles are neurologically based (1, 2, 12, 4, 9, 11, 14, 15), and not simply a reflection of a philosophical world view, culture, or socialization process — although the preferred cognitive style may indeed be influenced by environmental factors as Hovey (5) has indicated.

Research data on specific cognitive defects due to injury of the right hemisphere has indicated that researchers had vastly underestimated the cognitive functions of the so-called "minor" hemisphere and that, in fact, the right hemisphere was dominant for many different functions. In fact there is increasing evidence that the left-brain may, in certain cases, actually impede learning.

Cognitive style and the split brain

The most convincing evidence to date that a particular cerebral hemisphere is specialized for cognitive style comes from the research on split-brain patients done in the past thirty years. Perhaps the most important discovery of educational significance was that when the two hemispheres are disconnected two distinct brains or consciousness emerge, one in each hemisphere with no interchange of information possible between them. This meant that any visual, tactile, auditory, and olfactory information presented to one hemisphere of a split-brain patient could only be processed

by that hemisphere and without the knowledge of the other hemisphere. A number of non-verbal tests were designed to identify the specific functions and capacity of each hemisphere. These tests showed that although the right brain was silent, its perceptual ability was practically equal to the left brain. These tests also clearly showed that for all the tested subjects the speech center was in the left hemisphere. The right brain has been thought of as having no language, but actually the right brain was able to understand some limited language such as individual nouns.

Although the right hemisphere does not begin to compare to the left in terms of language ability in adults, neurological studies indicate that, although there seems to be a genetic predisposition for left-brain language control at birth, up to age five the right hemisphere is on a par with the left for handling language. Indeed, if a child suffers a left brain lesion before age five, the right brain takes over language functions. From age five on, the hemispheres become progressively more lateralized as to function so that by puberty the earlier language handling ability of the right brain has become inoperative. Damage to the left brain *after* puberty (at least for right-handed males) will typically result in some permanent aphasic condition.

Cognitive style preference

What may turn out to be of even wider educational significance than hemispheric cognitive style is the fact that certain cultural groups and individuals within a culture seem to prefer one cognitive style over another regardless of the task to be performed. We have all noted students who could assemble anything as long as they did not have to read the directions while others have to read the directions step by step. In response to a Learning Style Questionnaire which I developed, students indicated they prefer a "reading" mode, others a "hearing" mode, some a "learning-by-doing" mode, and still others a "viewing" mode in acquiring information.

What we now know about hemisphericity and cognitive learning style suggests that all these different ways of approaching learning situations can be sorted into either left or right-brain cognitive styles. If one limits oneself to using right-brain holistic non-sequential thought processes to solve problems in deductive logic or left-brain linear analytic thought processes to create works of art, the results while potentially interesting, probably would not be acceptable to the instructors.

It is now possible to determine which hemisphere is dominant for language. There are also some well-tested psychological tests of cognitive learning style in the literature. I also believe that there is a reasonably good case for linking hemisphericity and cognitive style. What is now needed is some behavioral measure that would indicate cognitive style preference by ascertaining which hemisphere elects to do the cognitive processing.

Some educational implications

The fact that man has two hemispheres largely lateralized into distinct thought modalities suggests that our teaching style will have a profound effect on one rather than both of the hemispheres. In the West, from elementary school on, we have emphasized the "three Rs" which are highly deductive in nature, and have therefore mainly educated the left-brain, leaving the right brain's great potential largely untapped. We have also read about and worked with those designated "culturally disadvantaged". It should now be apparent that, in the main, the "disadvantaged are simply right-brained kids in left-brained schools! Their disadvantage has mainly been lack of opportunity to practice left-brained analytic skills. And what of the left-brained kids in left-brained schools? Their usual strategy of using linear and rational left-brain modalities often lacks creativity, imagination, and warmth and leaves them often unaware that the sum may be larger and more exciting than the parts.

Clearly, if teaching the whole child is the goal, both hemispheres have to be activated. Madeline Hunter (6) has outlined some useful strategies for helping students use a particular hemisphere when the other hemisphere is not "getting it" which, similar to cognitive shift training, can be achieved by simply changing a directive from (say) "describe it to me" to "find it on the map." Klashen reports an example of adapting teaching style to learning style (8). A graduate student at UCLA found an interaction between cognitive style preference and the effectiveness of inductive vs. deductive methods of teaching Spanish. Inductive teaching/learning, which involves synthesizing parts into wholes was more effective ($p > .06$) than deductive teaching/learning for right-hemisphere dominant students. Deductive learning, which proceeds in analytic linear fashion from general rules to examples, was more effective ($p > .05$) for left-hemisphere dominant learners. The research on the split-brain and EEG research (11) clearly indicate that it is the nature of our directives or teaching style that determine which hemisphere is activated and which one idles.

Perhaps the principal virtue of these recent findings about the brain and how different people process information in different and diverse ways, is that it will serve as a scientific support for a more diversified curriculum and more sophisticated ways of facilitating the multiple processing of the brain. Apart from providing some needed direction for this diversification, this recent research on the brain should also stimulate a whole new set of questions for those who will help guide the future course of education. We now have a few more landmarks; hopefully they will help us steer a better course.

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THE CONTRADICTION OF PERSONALIZING SYSTEMS

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> The educator's concern as to whether an individual differing from the average is to become a genius, a fool or an outcast can only be answered by life itself, that is, by taking chances, and not by psychological experimentation and controlled tests.
>
> *Otto Rank (16:47)*

The nature of systems theory

The source of systems theory can be found in the reasoning of the biologist, von Bertalanffy (17:1-10), although the widespread utilization of general systems theory did not occur until the period following World War II. The work of von Bertalanffy began in the 1920's. Perhaps the most significant development concerning systems theory was the formation of the Society for the Advancement of General Systems Research in 1956. The concept "system" has been defined in several ways. System is referred to by von Bertalanffy as a set of "elements standing in interaction" (17:3). Hall and Fagen speak of a system as "a set of objects together with relationships between the objects and between their attributes" (9:18), while Cherry regards a system as "a whole which is compounded of many parts — an ensemble of attributes" (3:307). From a survey of those scholars most deeply involved in systems research, it is apparent that at least the following criteria must exist for a "system" to exist: (1) the system must be accurately placed and defined at some point in time and space; (2) several areas of study within several disciplines must be pursued in such a manner that the disciplines can conclude that a given system actually exists; and (3) the elements of the system and their relationships must be defined. While the concept of system has found wide usage in the profession of education, it has more often than not failed to meet these criteria and has remained un-

defined (1:10). However, the more telling problems with the use of "system" come from an ignorant (critically unexamined) acceptance of the notion.

The problem of borrowing

Social science was tempted by the apparent ability of the natural sciences to predict, explain, and control phenomena. Systems theory offered, to the minds of social scientists, the possibility of the same kinds of success with social interaction and organization. In short, social scientists donned the accouterments of the natural sciences. The more exact a natural science becomes, the more control it possesses over matter. Thus, Winter can rightly suggest that the more exacting a social science, modelled upon a natural science, becomes the more control it has over human beings (18). The use of system is a means of control. It is absurd to claim that the use of system is somehow value free (6). It was not long, of course, before colleges of education, in turn, borrowed the concept of system from the social sciences.

The products of the natural sciences are esoteric. These products can not be directly and immediately experienced, but rather are mediated through an often unreliable technology (10). On the other hand, it is possible for persons involved with the study of persons and social interaction to have an understanding of the objects of that study which is not foreign to unmediated human experience. It is critical to be conscious of the difference between the study of the natural sciences and the study of human beings.

> Scientific education is based in the main on statistical truths and abstract knowledge and therefore imparts an unrealistic, rational picture of the world, in which the individual, as a merely marginal phenomenon, plays no role. The individual, however, as an irrational datum, is the true and authentic carrier of reality, the concrete man as opposed to the unreal ideal of normal man to who the scientific statements refer. (12:20).

Most important human aspects are not susceptible to the definition required by a system. Of course, behaviorists have an answer for this — they simply do not deal with those aspects which are not specifiable in the terminology of systems. They reduce the individual to matter. The individual becomes a "client," a percentage, a partial correlation, a quantity, a linear regression equation whose most significant character is his behavioral output.

A professional identity crisis

The problem of a professional identity crisis associated with a new profession supports the overzealous attachment to method, technique and the use of system. The uncritical acceptance of systems models is merely

engaging in a methodological ideology which is so far removed from our lives and the lives of our students that it is only abstract and hypothetical. A goodly part of this situation may derive from the fact that our "profession" is non-paradigmatic — we are not sure what it is in the sense that a physicist might. Perhaps we worry too much about our status, about what our profession is, strive too much to emulate the social sciences which tried to emulate the successes of the natural sciences. Apart from the problems already delineated, the systems approach is not the prevalent view in the natural sciences at present. The notion, in fact, that a set of variables can be arranged in some sort of formulation, static in nature, which can explain individual or group (organizational) behavior over time is a view of science which does not appear to have prevailed in physics, for example, since the beginning of the 20th century. The image of systems which most educators seem to possess is based indirectly upon the study of completed scientific achievements as are recorded in textbooks. Kuhn points out that "a concept drawn from them is no more likely to fit the enterprise that produced them than an image of a national culture drawn from a tourist brochure..." (14:38). I suggest this is what the use of systems in our own enterprises amounts to. Becker has remarked on such as the use of systems by noting "the unbelievable sterility of the human sciences in our time and, more especially, their willingness to manipulate and negate man" (2:151). If we are to build a profession, let it be based in our own direct and immediate experience, not upon a borrowed approach designed to control matter through organization technique.

The ignorance of preconception

> When I finished I wiped my lips very nicely with the piece of my robe I reserve for the purpose, and I said to him, 'Jailer, I'll tell you an interesting fact. Everything we study, we modify by our study of it. Hence truth eternally eludes us.'
>
> He did not look convinced, just held out his hand for the plates.
>
> 'Take crabs, for example,' I said. 'We poke them with a stick to find out how they behave, and they behave as if poked by a stick.' (7:92)

We can achieve the same phenomenon with a system. That is, we can poke a person with a system and that person will behave like a person poked by a system. Systems are useless in terms of understanding individual facts. Jung directs our attention to the problematics and uncertainty of abstraction in constructing systemic models of behavior.

> Any theory based on experience is necessarily statistical; that is to say, it formulates an ideal average which abolishes all exceptions at either end of the scale and replaces them by an abstract mean. This mean is quite valid, though it need not necessarily occur in reality. (12:16)

Jung means that the character of reality is essentially irregular since it is only authentically carried by an individual (12:17). It must be recalled, however, that systems are characterized by regularity, by the maintenance of pattern variables. Garfinkel (8:67) is in concurrence with Jung on this point and reasons that systemic models concerning human beings show human beings to be "judgmental dopes." This situation occurs through the standardization of common understandings. Briefly, the patterns of behavior relate far more to the patterns and attributes of the systems model employed by educators than to the individuals who are being "poked" by such systems. This is a self-maintaining illusion in which the actuality of standardization is utilized to conceptualize the nature and effects of human phenomena that conform to standardized expectancies. The person as such is disregarded as merely a unit since elements of any system must be specified. Behavioral explanations are based upon past systematic idealizations relating to the correspondence between cause and effect, or if you will, between motive and response. Garfinkel has seen, as has Gardner, that if one pokes crabs or people with sticks or systems that they will behave accordingly. In this sense we learn nothing. We only know that people are pokable; susceptible to stimuli and that they orient themselves consequently; but we do not learn what meaning individuals attach to their responses to the system since they may just appear to be pokable. The use of system often leads to the practice of forcing people and data into preconceived categories to which they do not authentically belong. That is, facts and individuals are fitted to the system. The system can never, despite claims to the contrary, be fitted to an individual except as an act of false consciousness. This is because a system, by definition, is based upon an ideal average which exists only as a conceptual notion, but not in reality.

The need for order

The use of system retards the ability to generate alternatives which may lie outside the framework. System reinforces the *status quo*, it is quite lacking when it comes to explaining significant change or generating hypotheses, propositions, or new ideas. System is the child of conservatism, circumspection, and an overly prudent nature. System is, therefore, often a preferred tool for those who occupy administrative positions. Unfortunately, from the perspective of order, it is a paradox. The more systematically one attempts to deal with situations, the more insecurity is actually thrust into those situations.

Of great importance are those elements which are not specified by the system, those phenomena which lurk about, not susceptible to discovery because discovery and validation are indivisibly connected, and something will always remain outside of the system itself. If one chooses to merely ignore those "outside" phenomena, they will nonetheless intrude upon the order of the system most probably in unwelcome manners. The system itself is always teleological because classification is purposeful. This problem can

be clarified by example. Suppose a person is asked to define something. A perfectly logical, although generally unacceptable response (since it is a violation of the authority of the system or of the mentality of the person supporting the system) would be for that person to ask for a defintion of "define." This would demonstrate, of course, the problematics of abstraction. It would also tend to destroy the notion of system as anything other than the most poverty stricken and shallow representation of reality. This is why systems tend to be maintained by seducing people into accepting either the authority of the system or the authority (expertise) of the person manipulating the system. Order or the need for order (adaptation-control) is to be found in the systems model itself, not in the world or in individuals. It is perfectly clear, however, that it is possible to condition persons to become like systems and thereby lure them into identification with the model.

We should cherish chance happenings because they encourage the flow of ideas. Enamourment with systems is to be charmed by order. As Jung observes

> Chance happenings are repellent to the mind that loves order. They disturb the regular predictable course of events in the most absurd and irritating way. We resent them as much as we resent invisible, arbitrary forces, for they remind us too much of Satanic imps or of the caprice of *deus ex machina*. They are the worst enemies of our careful calculations and a continual threat to all our undertakings. (11:113)

We need such uncertainty because it gives growth and meaning to our activities. The manner in which one may halt growth is through the "magic" of systems. Systems enable one to name or categorize life so as to make it stand still. As educators, such a prospect should seem neither amusing or interesting.

Systems and personal responsibility

Systems are not necessarily in error, but they cannot express that which is implicit in them, and above all, they cannot express the entirety. The world is, first of all, a subjective phenomenon. Systems, with their emphasis upon adaptation and control serve to obscure this subjectivity. Quite often, it is the person who is obscured. Systems cannot be personalized because you cannot make a conception of a living human being. Each human self is single, incommutable and unique. A complete specification, definition, or description of the human self is single, incommutable and unique. A complete specification, definition, or description of the human self is impossible (13:66). A human being is movement, a continually unfolding potentiality. An attempt to rationally grasp this potentiality through the employment of systems is impossible because such rationalism

does not orient itself toward matters which exceed the bounds of consensual fact and logic.

If, however, one is to perceive education as the *understanding* of human life, rather than its *manipulation*, then uncertainty and subjectivity make a good deal of sense, although such understanding requires a "different" kind of thinking. The solution to the problem of systems is not to elaborate upon technology (5), nor is it to extend the intellect in its rationalistic sense as in the case of more and more elaborate computer technology. The paradox of system implying non-system remains. A system acts as a sort of "sociopolitical filter," sifting out an educational/organizational fantasy which has two major consequences: first, one can learn all kinds of fictions about reality by accepting systemic notions which may become included in the individual personality; and, second, actual reality is kept from coming into consciousness. As an example, most evaluation systems bear no resemblance to reality, but are at best abstractions.

Additionally, a system places an emphasis on described experiences and behaviors which are considered to be of value or acceptable in terms of the systematizaton itself. Most of our notions of deviance flow from this fact, and some experiences must be repressed when particular forms of behavior and awareness are incompatible with the social consensus or predominant notions of the ideal learning environment or the ideal learner represented in the system. To place an emphasis on systems is to place great importance on conventions. To place great importance on conventions one has, in effect, contrived a comfortable manner of obtaining one's decisions so that reliance on one's self is avoided. What systemic conventions do, in other words, is to maintain people in an unconscious state so that they are relieved of the necessity of rendering conscious, and therefore sometimes painful and hard decisions. "This very convenience, this ease with which routine can be substituted for deliberated action is the greatest psychological danger of all" (15:204). The danger resides in the unpredictable consequences which may arise when novel circumstances which do not fit the conventions of the system occur. The routines of a learning system provide an example of the ease with which individual responsibility for making decisions concerning the needs of individual students can, in actuality, be avoided. Whether the kind of education done by our profession is to be an achievement or destructive depends, as it were, upon one person.

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APL — AN INTRODUCTION

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The Adult Performance Level study (APL) began in 1971 at the University of Texas at Austin. It was funded by a million dollar grant from the U.S. Office of Education, Adult Education Division, and took a little over four years to complete. Objectives were to specify the competencies which are functional to economic and educational success in today's society, and to develop devices for assessing those competencies of the adult population of the United States. "Success" was defined in terms of income, education, and job categories, labelling as "unsuccessful" those adults with income below $5,000, education below 9th grade, and job classification as unemployed or unskilled (1).

By these standards, the study determined that one out of five (19.8%) American adults lacks skills and knowledge to function effectively, one out of three (33.9%) is barely able to get by, and less than half (46.3%) are functioning competently. Some specific findings included: 28% of adults tested could not figure correct change for a $20 bill when given a drugstore receipt itemizing and totalling purchases; 25% were unaware that a normal body temperature is 98.6 Fahrenheit; and 34% believed incorrectly that police had a right to detain a suspect for up to a week without bringing charges against him (7).

The APL theory of functional competency identifies adult needs in five general knowledge areas: *consumer economics, occupational knowledge, community resources, health, and government and law;* and in four areas of primary skills: *communication* (reading, speaking, and listening), *computation, problem solving, and interpersonal relations.* 65 general objectives were developed in the APL study to determine an adult's ability to cope with everyday living. Some examples are:

Consumer economics

1. To be aware of the basic principles of money management
2. To be aware of factors which affect costs of goods and services

3. To be aware of advertising techniques
4. To determine housing needs and how to obtain housing
5. To develop an understanding of credit systems

Occupational knowledge

1. To become familiar with occupational categories
2. To prepare for job applications and interviews
3. To know standards of behavior for employment
4. To know attributes and skills which may lead to promotion

Community resources

1. To know the types of community services provided
2. To understand how, when, and where to apply for community services
3. To understand the relationship between transportation and public problems

Health

1. To understand what contributes to good mental and physical health and to apply this understanding
2. To understand how basic safety measures can prevent accident and injury
3. To understand family planning and child rearing practices

Government and law

1. To develop understanding of the structure and function of the federal government
2. To understand the relationship between the individual and the legal system
3. To obtain a working knowledge of the various documents which the individual will need as a member of society

Using content of the five knowledge areas while teaching the four areas of primary skills is emphasized in APL. As many as 18 sub-tasks related to a general objective are listed in *The APL Scope and Sequence Charts* (4), demonstrating how dual objectives may be developed: e.g., the skill of *reading* or *problem solving* at the same time as knowledge about *health*, or building an oral and written vocabulary related to one's job while learning attributes and skills which may lead to promotion. In addition to the scope and sequence charts, two instruments to assess functional competencies, one for adults and one for high school, were published by American College Testing Program in 1976. (3)

National impact of APL

About one hundred and twenty funded projects nationwide in more than thirty states have been involved in activities related to APL, many

even before the University of Texas at Austin findings were published. A new route for earning high school credit based on adult competencies is the External Degree program, which allows credit for life experience and home study to meet competency needs. New York and Texas now offer these programs in addition to the traditional G.E.D. and adult night school diplomas, while Oregon will grant External Diplomas in 1978 through its community colleges.

Alabama is carrying out a program funded by federal (1.3 million dollars) and state ($300,000) sources which takes remedial teaching to the "closet" nonreader in homes and churches of 17 school systems. Mississippi has developed an APL educational television program using two young couples as protagonists, dealing with consumer economics. Missouri University in Kansas City has conducted research to identify competencies appropriate for adult basic education (ABE) teachers who use the APL approach. (10)

In California a wide variety of research, training, and material development related to APL is being carried out by more than 15 federally funded programs. California State University, Fullerton is completing its second year of an APL oriented program training ABE teachers. The instructional materials format and an example used in development of dual objective modules by participants in the program were among materials in the Appendix. A. C. E. Competency-Based Pre-Vocational Basic Skills Teaching Units (San Mateo County Office of Education, San Mateo, CA) include at present 31 vocational units representing the reading, writing, mathematics, and problem solving skills needed for 100 low entry-level jobs research in that area. San Francisco State University is providing a series of workshops training teachers in development of modules related to APL competencies. San Diego Community College Adult Division is federally funded to disseminate ABE/APL information. Nationally, about 35 projects are concentrating on staff development related to APL, while some 85 are specifically geared to production of materials for the APL program.

Pros and cons

The mushrooming growth of APL has met with mixed reaction. William S. Griffith, addressing the NAPCAE/AEA convention in New York, November 20, 1976 (9) called for a vigorous appraisal of the merits and limitations of the program. He said that the concept was not new; that too much support, publicity, and money had been invested in it too soon; and called attention to the fact that ABE programs are now only reaching 1% of the target population.

Teachers of adult students have variously complained about the amount of time and effort required to individualize and write competency-based objectives for APL; the confusion of various forms of the APL model and omission of human interaction from some; the high reading level and limited range of the ACT assessment instruments; and the pragmatic ap-

proach as ignoring style, language, good literature and development of recreational reading.

Supporters of APL agree that the concept of adult education related to competencies needed for daily life is not new, but point out that ABE programs nationally have varied greatly in the knowledge areas included. They feel that a nationally adopted APL model would provide a framework for more unanimity among ABE programs, and will serve to coordinate the fragmented efforts of various state agencies. In California, more than fifty state agencies are currently concerned with adult functional competencies related to their fields, and have both educational staffs and developed materials but a relatively ineffective delivery system. State departments of consumer affairs,health, economic opportunity, IRS, conservation of water/energy/land/air and motor vehicles are concerned with reaching some 250,000 adults who can't read or write, and another half million who read and write only in a language other than English. APL supporters argue that the program would offer effective delivery systems for the vital information these agencies need to convey.

Using the five APL knowledge areas as content for teaching the basic learning skills will alleviate two recurring problems of adult education, according to APL supporters: (1) the adult learner is not a captive audience and will drop out if his perceived needs are not met, and (2) many ABE/ESL students are transient and do not stay in a program long enough to become functionally competent in both academic skills and knowledge areas when they are taught separately, but dual objectives could accomplish significant growth in both areas.

Perhaps the strongest argument for APL is the contention that the publicity, availability of state and federal monies, and dissemination of research results draws attention and help to an educational problem for which there has long been too little money and research. If literarcy is no longer to be defined as ability to read at 4th grade level or sit through a specific number of school years, but in the APL definition, as ability to apply skills to major knowledge areas needed for coping with our society, then we can conclude that there is a significant literacy problem and our educational system needs to give Americans better training for adult living. As initial guidelines for such an effort, the APL study and related research may well effect needed change.

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APPENDIX

Institute for Reading
California State University, Fullerton
800 N State College, Fullerton, CA 92631

Attention
___ Bishop
___ Hancock
___ Inabinette
___ Klausner
___ May

Read 592B — Klausner
Instructional materials format

Coping Skill _____
Adult Reading Level _____

Learning opportunity prepared by: _____

COPING SKILL OBJECTIVES _____
(Specify whether Human Relations, Health, Consumer Economics, Occupational Knowledge, or Government & Law, and state specific objectives related to that area)

BASIC SKILL OBJECTIVES _____
(specify whether reading, writing, speaking & listening, computation, or problem-solving, and state specific objectives related to that area)

MOTIVATIONAL INTRODUCTION _____
(specify materials, techniques, & activities including words or other content for pre-practice)

DIRECTIONS _____
(give complete directions for the activity)

READING _____
(give exact wording of material to be read by students)

QUESTIONS _____
(state specific questions student is to answer; check to be sure these refer to the skills you have listed)

ANSWER KEY _____
(list answers for each question)

COMMUNITY RESOURCES _____
(list specific community resources related to the topic or skills studied in this learning opportunity)

FOLLOW-UP _____
(list topics for discussion or further practice and other audio-visual aids or reading materials which might be used)

Sample Project
READ-592B/Klausner

Coping Skill: *Human Relations*
Adult Reading Level: *Functional*

Prepared by: DAN RAMIREZ, Santa Ana Adult School, Santa Ana, California

COPING SKILLS OBJECTIVE

Many adults lack skills in adjusting to urban living, meeting new people, and making new friends.

BASIC SKILL OBJECTIVES

Reading: Main Idea, Important Details, Sequence, Cause/Effect

MOTIVATIONAL INTRODUCTION

1. Show film (County Recreation Activities Programs)
2. Discuss questions:
   a. What is the film about?
   b. What activities were described?
   c. Which came first: outdoor or indoor activities?
   d. Did players seem to become friends?
3. Demonstrate parks & recreation pamphlets and discuss.
4. Write vocabulary on cards & discuss. Play Bingo with these words.

brochure	involved	availability	hand-ball court
class-schedule	recreation	life-style	weight-lifting
pamphlets	listing	active	bowling
work-out	loads	suggestions	ball-leagues

DIRECTIONS

Read the printed story below. Write answers to the questions.

READING: **Who Says There is Nothing To Do?**

Peter: How is it going?

John: So-so.

Peter: What did you do last night?

John: Not much of anything...sat around and watched T.V. What else is there to do when you don't know anybody?

Peter: There are loads of activities to do year-round. For example, hand-ball, weight-lifting, bowling, swimming, baseball and other ball-leagues. You know, I used to sit around and do nothing when I first came. Then I found out about all the different activities available here. Now I am active and I really like it.

John: But how do I find out about them? Where are they? How do I get involved?

Peter: Hey, man, look in your newspaper. Get pamphlets from the parks and recreation people, read your junior college and adult school class-schedules, listen to the radio for a listing of what's going on. By the way, I'm going down to the hand-ball court tonight for a work-out...would you like to come with me?

John: Sure, I can dig it!

QUESTIONS

1. What is the story about?
2. Why did John sit at home and watch TV every night?
3. How had knowledge of these activities changed Peter's life?
4. What was the first place Peter told John to look for information?
5. Could participating in these activities help John meet new friends? How else could it help him?

ANSWER KEY

1. How recreational activities can help adjust to urban living.
2. Because he had nothing else to do.
3. He became active and liked it.
4. The newspaper.
5. Yes, it might. He would feel active and involved.

COMMUNITY RESOURCES

County Parks & Recreation Dept.; YMCA & industrial leagues; community colleges and adult schools; library films.

FOLLOW-UP

Speaker, film, or brochures from Little League, Boys' Club, Women's Centers and other organizations that offer opportunity to get involved.

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